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THE DISTRIBUTION AND EXTENSION OF TUBERCULOSIS *

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Infection by the human tubercle bacillus is usually by way of the air. Infection by the bovine bacillus is by ingestion, and far larger numbers of bacilli are needed. Gebhardt found that 800 tubercle bacilli would infect guinea-pigs by inhalation, whereas by ingestion 10 million failed to produce disease. The probable explanation of this difference lies in the culdesac structure and relative stasis in the bronchopulmonary unit, and in the activities of the alveolar phagocytes which pass out into the alveoli, ingest particles, and carry them back into the lymphatics. All particulate matter is much more readily taken up by the lung than by the intestine; this is illustrated by the fact that anthracosis of the lung and bronchial nodes is practically universal, while anthracosis of the intestine and mesenteric nodes is almost never seen, notwithstanding the proverbial peck of dirt.

In rare cases the tubercle bacillus may enter the body through the skin, usually through an abrasion. The historic skin infection of Laënnec, who was inoculated when his saw slipped while he was performing an autopsy on a cadaver with Pott's disease of the spine, is a case in point. But probably most patients with lupus develop the skin lesion through bacilli carried to the skin by the circulation.

The mucous membrane is the first line of defense against the tubercle bacillus and penetration of intact membrane by bacteria is probably rare, though this may not be true in the lung, owing to the phagocytes already mentioned. Should the membrane be abraded, many bacteria can enter the body.

A tubercle bacillus, protected from easy digestion by its coat of wax, is engulfed by a phagocyte when it gains entrance to the body. The phagocyte carries the bacillus eventually to a lymph node, and it is here that the typical defense of the organism begins with tubercle formation.

Primary tuberculosis of the nasal mucous membrane is almost unknown in spite of the frequency with which the tubercle bacillus can be found in the nasal passages of those exposed to tuberculous patients. The explanation suggested by Calmette is that dust and bacteria exercise a positive chemotaxis on the leukocytes, and these, migrating without the surface, englobe the bacteria and themselves become expelled with the mucus. A similar cleaning action by phagocytes appears to take place on the mucous membrane of the mouth and pharynx. With the tonsils primary tuberculosis may occur, bacilli being carried within by phagocytes. Ryder found tuberculosis of tonsils or adenoids in about 1 per cent of persons having no known tuberculosis elsewhere, and in about 50 per cent of persons with known active pulmonary tuberculosis.

The lymph nodes constitute the second line of defense, and while many kinds of bacteria which have succeeded in passing the first line are easily destroyed by the lymph nodes, it is probable that they cannot overcome even a moderate number of tubercle bacilli which may be brought to them. It is in the lymph nodes that the first manifestations of tuberculosis are apt to be found. According to Cohnheim's law, if tubercle bacilli escape from the lymph nodes to cause disease in another part of the body, there are always enough in the lymph node to cause disease there.

The mucous membranes may be penetrated by the tubercle bacillus without local lesions arising, and this is frequently the case in children when tuberculosis of various lymphatic chains is seen and no lesion of any mucous membrane detected.

Cobbett, in analyzing the reports of twenty-one children in whom lymph nodes were found to contain tubercle bacilli, noted thirteen children with bacilli in both mediastinal and mesenteric nodes, five with bacilli in bronchial nodes alone, and three with bacilli in mesenteric nodes alone. Autopsy investigation in children, as regards the respiratory or alimentary portal of entry, showed that the former predominated in the ratio of 53 to 25.

A. S. Griffith states that there is no recorded instance of primary thoracic tuberculosis in a child being due to the bovine tubercle bacillus. Were the portal of entry of human thoracic disease through the alimentary route, one would have to grant that the human bacillus behaved differently from the bovine.

Meningitis is part of a generalized tuberculosis and more commonly associated with thoracic disease than with abdominal. It is a fairly frequent terminal complication of male genital tuberculosis especially after surgical intervention. Bone and joint tuberculosis may originate from either thoracic or abdominal disease. The blood stream seems the only probable route of metastasis here.

Pasteur, experimenting with chicken cholera, produced cutaneous abscesses in guinea-pigs. When these animals were released in a pen with chickens, the latter became ill and died while little alteration was seen in the health of the guinea-pigs. "How many mysteries in the history of contagions will one day be solved as simply as this!" exclaimed Pasteur. We have here the earliest demonstration of "carriers." The arrest of pulmonary tuberculosis by the rest regimen actually increases the number of tuberculosis "carriers." The victims of pulmonary tuberculosis are especially apt to

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

come from homes in which a parent has also been a sufferer or may have died of this disease. Constant contact with a tuberculosis carrier, especially in childhood or young adult life, with the inescapable inhalation of cough droplets or the dust of the dwelling, is the method by which the tubercle parasite continues its cycle of existence. Mullin and Ryder by simple experiments, in 1920, showed that suspensions of tubercle bacilli inhaled from the upper air passages in rabbits would produce tuberculous lesions in the lungs, corresponding closely in distribution to the lesions of pulmonary tuberculosis in man. They failed to find tubercle lesions in the nasal tract or in the cervical or mesenteric nodes, and noted a preponderance of lesions in the upper parts of the lungs with a marked involvement of the bronchial nodes. With similar experiments in etherized guinea-pigs they at times produced a condition simulating "scrofula," indicating a probable invasion of the upper respiratory tract. Harbitz more than twenty years ago noted a wide distribution of tubercle bacilli in the lymph nodes of children, especially in relation to pulmonary tuberculosis. Experiments by Webb, Ryder and Olcott in 1922 gave evidence that subcutaneous inoculation of tubercle bacilli in the guinea-pig is followed by early development of lesions in the lymph nodes of various remote regions of the body. Inoculations were made under the skin of the abdomen or in the groin. The nodes in which lesions were demonstrated were the inguinal nodes of the side inoculated (primary), inguinal nodes of the other side, and the iliacs, aortics, axillary, two groups of cervical, retrosternal, tracheobronchial, hepatic, mesenteric and ileocecal nodes. "Except in the inguinal nodes primarily involved, and in the bronchial and hepatic nodes, which by their position are particularly subject to cumulative infection, the tendency of these widespread lesions of the lymph nodes is to reach a rather constant standard, characterized by slight enlargement and moderately extensive caseation, and then to progress no further." It is possible that tubercle bacilli in such remote nodes might in time perish, after living in an almost hibernating condition. The route by which these distant nodes become infected has been suggested by Krause. Bacilli reach the heart by means of the thoracic duct and are then passed into the lungs by the pulmonary arteries. Some bacilli become collected by the tracheobronchial nodes and bronchial lymph depots; others pass to the left heart and out into the general circulation, eventually draining into distant lymph nodes.

The bacilli therefore are probably not distributed directly from one lymph node chain to another in the case of distant metastasis, but by means of the general circulation. The late Colonel Bushnell, however, in suggestive contributions to the subject, held that even distant extensions of the disease were by lymphatic continuity, or perhaps sometimes by caseous emboli.

Subcutaneous and other inoculations of tubercle bacilli into experimental animals usually do not produce tuberculosis of the intestine. But Loeper and Esmonet, in 1912, produced tuberculous enteritis in dogs by injecting tubercle bacilli into the mesenteric arteries, and recently Branch, Steenken and Petroff have produced intestinal tuberculosis by inoculating a virulent human strain into the left heart ventricle of normal guinea-pigs. It has been noted by pathologists that in intestinal tuberculosis the ulcers found are often exceedingly numerous and of similar size, suggesting that the complication has arisen through bacilli carried by the blood stream. Calmette has long held this to be the case, but it must be admitted that the evidence is not yet conclusive.

There can be little doubt that tuberculous lesions of meninges, brain, retina, kidney, and bones and joints are originated by bacilli which have reached these tissues through the blood stream. In the case of all the regions mentioned except the kidney, the blood stream is the only probable route; while ascending infection of the kidney by way of the urinary tract or its lymphatics seems very unlikely except when there is a well defined lesion lower down, as is not always the case, especially in females. And these lower lesions, in turn, are generally believed to be of hematogenous, not venereal, origin.

Tubercle bacilli may penetrate mucous surfaces such as those of the eye, nose, pharynx and bronchi without producing local lesions, and, wherever the portal of entrance may be, tubercle of the tracheobronchial lymph nodes will result. It may occasionally happen that bovine tuberculosis attacks the mesenteric lymph nodes while the tracheobronchial nodes remain normal; but it is doubtful whether choroid, tonsillar, lingual, pharyngeal or laryngeal tuberculosis ever takes place without concomitant infection of the tracheobronchial nodes. Such lesions, however, may occur in the absence of manifest pulmonary tuberculosis. I have had under observation two patients with tuberculosis of the larynx in which no pulmonary tuberculosis could be determined. In each case, however, tubercle deposits at the hila could be shown by x-ray films.

It has been argued that continuous heavy surface infection possibly combined with continuous local irritation might originate tuberculosis of the larynx, pharynx or trachea, and this possibility cannot be excluded when the tissues are exposed to heavily infected sputum. Data from autopsy records may be abnormally high as the result of the terminal breakdown of the defensive mechanism. From analogy with the distribution of other lesions quoted—lesions of tissues not superficially exposed—it is my belief that tuberculosis of these organs is most frequently caused by bacilli carried by the blood stream. If surface infection were by far the most important factor, lesions of the superficially exposed organs should be overwhelmingly the commonest complications. Data on this question are not entirely satisfactory. Baldwin, Petroff and Gardner, however, state that tuberculosis of the larynx occurs in about 25 per cent of cases of pulmonary tuberculosis, and tuberculosis of the kidney in from 25 to 50 per cent, if carefully sought for post mortem. In pulmonary tuberculosis *with cavitation* they state that tuberculous enteritis occurs in about 90 per cent. Calmette, quoting several observers, gives from 80 to 90 per cent for tuberculosis of the intestine, while Eisenhardt, in 1,000 autopsies on persons with pulmonary tuberculosis, found this complication in 57 per cent. However, one should note Calmette's statement that with thorough search tubercles can be found in the liver in nearly all persons dead of tuberculosis, and in the spleen about as often. The liver is not very likely to be infected by any route except its blood circulation, and the spleen can hardly be reached otherwise, except in cases of tuberculous peritonitis.

It is known that infection has access to all organs and tissues by way of the blood stream. It has been conclusively proved that "bacillemia" without acute general miliary tuberculosis occurs in a considerable percentage of cases of pulmonary tuberculosis, and there

is a strong presumption, from the presence of tubercles in liver and spleen, that it occurs at some time in all, or nearly all. It has been shown that tuberculous enteritis can be produced experimentally by actual inoculation much more readily than by simple infection. It therefore seems reasonable to suppose that tuberculous enteritis and laryngitis do have a hematogenous origin, at least in many cases.

Two more analogies may be pertinent. In syphilis, superficial lesions in the mouth are among the commonest features of the secondary stage, but they are quite certainly part of a general infection and not due to surface implantation. In typhoid it is now generally recognized that the original invasion of the intestinal wall by the typhoid bacillus leaves no visible traces, and that the characteristic later lesions of the intestine are the result of hematogenous infection during the septicemic stage. A few years ago such a view would have been regarded as a fad or a heresy.

Further development of this theme would lead to an exploration of the boundless field of relative tissue susceptibility and selective adaptation, for which the time is too short.

402 Burns Building.

ABSTRACT OF DISCUSSION

DR. E. D. DOWNING, Colorado Springs, Colo.: The tubercle bacillus is at the bottom of all tuberculous lesions, but with the recent advances in refined diagnosis we have seemingly forgotten that to be scientific in our work we must find the tubercle bacillus to prove the clinical diagnosis. The reason I emphasize this elementary fact is that there are other diseases, especially the fungus diseases, that mimic tuberculosis almost perfectly, and that, in spite of one's great clinical ability, if one looks in a throat and diagnoses tuberculosis, there is a possibility of error that a fungus disease may be the cause of the lesion. Even an expert pathologist may at gross examination call a lesion tuberculous and find on going to his microscope that it is due to a pathogenic mold. There are other organisms that have the same general characteristics as the tubercle bacillus, but one must insist that the technician find the pathogenic tubercle bacillus and not one of the forty or more acid-fast or partly acid-fast bacilli that exist in nature. Dr. Webb spoke of the life history of the tubercle bacillus. When that is worked out medicine will be a more ideal science. I wonder how many here have seen the cilia that cover the mucous membrane of the bronchial tree wave under the dark field microscope. One who wants a new sensation and a new conception of the nose and throat protective apparatus should get some laboratory man to show him these ciliated cells by dark field. Dr. Webb said that the tubercle bacillus went through the cells without breaking the mucosa. It may grossly. If in the bronchial tree the cilia are denuded, then the bacillus could go through, as the cells would have lost their mechanical protective apparatus. In the Scientific Exhibit they have some roentgenograms showing lung stones in tuberculous subjects. These pictures gave me a new idea; namely, that instead of coughing up these pneumoliths the tuberculous individual may loosen the stone in one part of his lung only to aspirate it to another. He would then have an endogenous aspirated foreign body which would get up a corresponding bronchopneumonic area.

DR. WILLIAM C. FINNOFF, Denver: The point Dr. Webb has brought out, that tuberculosis frequently is a blood-borne disease, that it manifests itself on the surface, has been demonstrated repeatedly in the eye and its adnexa. Numerous cases have been reported of tubercle in the conjunctiva, the lids and the cornea, classified as primary cases, when in reality they should have been classified as secondary. We frequently see tuberculosis of the iris without demonstrable lesions in the lung or elsewhere in the body. We see tuberculosis of the choroid and retinal vessels as well. Prior to 1913, all cases of tuberculosis of the eye in which active tuberculosis in other portions of the body could not be demonstrated were classified as primary tuberculosis of the eye, the theory being that the tubercle bacillus lodged in the conjunctival sac, penetrated the covering of the globe, and then entered the eye and produced disease. It is now known that this does not occur. The disease primarily is either in the mesenteric or in the mediastinal lymph glands or some other portion of the body. When bacilli break loose from their primary focus they are carried by the blood stream to the eye and there produce disease. We have produced tuberculosis of the eyes in animals in many instances. We have shown conclusively that through an unabraded mucous membrane we cannot produce tuberculosis of the conjunctiva, choroid or lids. Then we abraded the conjunctiva and filled the culdesac with living virulent tubercle bacilli. In a few instances we produced local lesions in the conjunctiva. Other animals were injected with tubercle bacilli and in these we produced localized lesions, but in only a few instances did we get extension to other points. We injected tubercle bacilli intravenously and intra-arterially. Arterial injection was followed by lesions of the uveal tract in a majority of instances. We have succeeded in producing in animals all types of tuberculosis seen in man, including lid, conjunctival and corneal tuberculosis, by injecting the bacilli into the blood stream. We have frequently received enucleated eyes in which tuberculosis was suspected. These cases did not present active tuberculosis in the lung, and in many instances the diagnosis was questioned by the internist because of the absence of demonstrable, active lesions in the lung. After the eyes were sectioned we were able to demonstrate acid-fast bacilli in the lesion and in some instances parts of the lesion that were removed produced the disease in guinea-pigs. This, to my mind, is conclusive evidence that these cases were due to tuberculosis, and that the tuberculosis was secondary. I am convinced that many cases of tuberculosis of the larynx must of necessity be hematogenous in origin rather than localized primary infection by the tubercle bacillus entering through the mucous membrane.

DR. T. E. CARMODY, Denver: It must be remembered that practically all infections in the lung are foreign body infections. That is, a foreign body has been aspirated into the lung. It penetrates the tissue. There is a much more resistant tissue in the mouth and pharynx and nose. Dr. Downing called attention to the ciliated epithelium that protects the cells. These cilia wave back and forth, clearing the nose of infectious material and dust. They are a protection to the epithelial cells against infections from the surface, unless, as Dr. Finnoff brought out, there is an injury; then there is a possibility of the development of tuberculosis in the nose. It is the same way in the mouth, only there is not the cilated epithelium in the mouth. However, there are a great many more glands and more mucous membrane in the mouth to carry away the infectious material. The infectious material may be swallowed or inspired into the larynx and bronchial tubes, and, of course, more infection may develop there because of the easy entry and less protection.

DR. JAMES W. LAWS, El Paso, Texas: My observation has been that the persons who develop tuberculosis of the eye usually have apparently recovered from clinical tuberculosis. Every now and then in an unquestionable case of laryngeal tuberculosis no demonstrable evidence of active pulmonary tuberculosis can be made out. I feel that the majority of humanity receive their primary infection of tuberculosis in childhood, and that the bacillus lies dormant; then, as the result of lowered immunity or of some accident, the bacillus finds its way into the circulation and the patient develops localized tuberculosis of the larynx or of the eye. It has been my observation that in a majority of advanced cases intestinal tuberculosis is a terminal condition.

DR. GERALD B. WEBB, Colorado Springs, Colo.: I would emphasize that pulmonary tuberculosis is the achievement of the tubercle bacillus. Any parasite must have access to a host and grows through the host. It must be remembered, too, that pulmonary tuberculosis is not a disease which is limited to the chest and the lungs; that the tubercle bacillus is always present in remote parts of the body, waiting, living a hibernating existence, and that at some time it may wake up and produce active symptoms. Therefore, in a lesion in the ear or eye, the bacilli are carried to these organs by the blood stream,

and the probability is that in most cases of tuberculosis of the larynx, except in the far advanced cases in which the immunity is lost, the early organisms are blood borne. In regard to what Dr. Laws had to say about advanced cases, that is true, but if the cases are studied carefully and we are able to do x-ray work, we recognize them early. I think most of the lesions are blood borne, carried through the circulation and disseminated in that way.

RELATION OF BLADDER PRESSURE TO BLADDER FUNCTION *

EDWIN W. HIRSCH, M.D.
CHICAGO

Urologists generally exercise caution in emptying the overdistended bladder because grave complications may follow a rapid, complete evacuation of urine. Sir Henry Thompson [1] tells how he was once summoned to help defend a brother practitioner who was charged with manslaughter because his patient died while being catheterized. The circumstances, in brief, were as follows:

A man suffering with a retention was catheterized in the standing position, and after 6 pints of urine had been removed he fell dead from syncope. It must have seemed to the relatives of this unfortunate man that this untimely death could have been prevented, which was undoubtedly true. Though Thompson regarded the charge of manslaughter as outrageous, he admits that the physician erred in removing such a quantity of urine at one time and advised that catheterization be carried out in the prone position and that only a limited amount of urine be drained at the initial catheterization. This case may have been the basis for the urologic adage "Never completely empty the overdistended bladder."

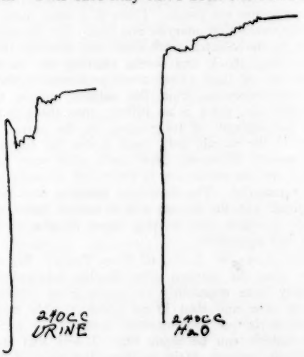

Fig. 1.—Bladder pressure obtained with the bladder normally filled with urine and the same bladder filled with irrigating solution.

Today fractional catheterization is practiced by the majority of urologists, most of whom have known of, or have seen, untoward complications arise from the sudden removal of the entire bladder content in chronic retention. To overcome the inconvenience of repeatedly passing the catheter, Van Zwalenburg [2] devised a simple apparatus for decompressing the bladder which was used successfully by himself and later by Foulds.[3] Utilizing the same principle, Shaw and Young [4] originated a device much easier to employ. Cunningham [5] invented an aneroid manometer for this purpose. Bumpus and Foulds [6] showed that the reduction of bladder pressure effected a proportionate fall in the chemical condition of the blood and in the blood pressure. These workers agreed that the decompression should take several days.

Campbell [7] found that the bladder pressure was reduced 50 per cent when the first hundred cubic centimeters of urine was removed, and concluded that the initial withdrawal of this small amount induced the major renal and circulatory shock. Though he states that the optimal rate for decompression has not been determined, he is satisfied to complete the emptying in twenty-four hours. Scott [8] employs a ureteral catheter and drains the bladder by the drop method in twenty-four hours, he finds this to be a safe and satisfactory method.

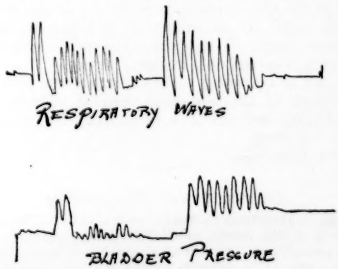

Fig. 2.—Relation of respiratory action to bladder contraction. Deep breathing elevates the bladder slightly but greatly augments the bladder wave.

To determine the optimal rate for decompressing the bladder, it was necessary to devise a method for observing the behavior of the bladder muscle under various conditions. The method consisted of attaching a catheter to a water manometer and recording the tracings on a smoked drum. A comparison of the tracings obtained from bladders normally distended with those in which irrigating solution was substituted for urine showed a great similarity. Bladders artificially filled will produce a slightly higher pressure and the bladder contractions will have more amplitude than those which are normally filled (fig. 1). Thus the data obtained from this study of bladder contractions, in which the normal conditions are simulated as closely as possible, may be utilized clinically.

An intensive and brilliant study of the clinical phases of bladder pressure has been made by Schwarz,[9] who records his observations in numerals and with this

* From the Department of Urology, University of Illinois College of Medicine.
* Read before the Section on Urology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

1. Thompson, Henry: Clinical Lectures on Diseases of the Urinary Organs, London, J. and A. Churchill, 1883.
2. Van Zwalenburg, Cornelius: Emptying a Chronically Distended Bladder, J. A. M. A. **75**: 1711-1712 (Dec. 18) 1920.
3. Foulds, G. S.: The Gradual Withdrawal of Residual Urine from the Chronically Overdistended Bladder, J. Urol. **5**: 453 (May) 1921.
4. Shaw, E. C., and Young, H. H.: Gradual Decompression in Chronic Vesical Distention, J. Urol. **11**: 373-394 (April) 1924.
5. Cunningham, J. H.: A New Method for Gradual Decompression of the Bladder in Cases of Massive Retention, J. Urol. **12**: 347 (Oct.) 1924.
6. Bumpus, H. C., Jr., and Foulds, G. S.: Gradual Emptying of the Overdistended Bladder, J. A. M. A. **81**: 821-823 (Sept. 8) 1923.
7. Campbell, M. F.: Studies in Bladder Decompression, J. Urol. **17**: 371 (March) 1927.
8. Scott, W. W.: Gradual Decompression of the Bladder with a Ureteral Catheter, J. Urol. **19**: 81 (Jan.) 1928.
9. Schwarz, O.: Handbuch der Urologie, Berlin, Julius Springer **1**, 1926.

information draws his curves. There is a considerable element of error in this system of record, for, should the pressure fluctuate rapidly, one can only guess at or approximate the reading; or the variations may be so slight that one cannot read the difference on a scale nor can one represent the minute bladder waves. The manometer makes an automatic record which omits the human error of observation and prints a picture of the bladder pressure as well as the type of bladder contraction.

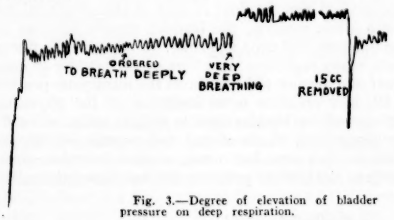

Fig. 3.—Degree of elevation of bladder pressure on deep respiration.

To evaluate bladder pressure curves and bladder contractions properly, one must consider those extrinsic factors which may modify them. Respiration, with its rhythmic contraction of the diaphragm, is the element that induces the so-called bladder wave, and the relation of the rate and depth of respiration to bladder contraction is illustrated in figure 2. Contraction of the diaphragm increases the intra-abdominal pressure, and this force is transmitted to the bladder wall, which is indicated by the synchronous bladder waves. Continuous deep inspiration causes a slight to moderate rise in pressure as well as a greater amplitude of the contractile waves. Violent contraction of the diaphragm, such as occurs in coughing, will elevate the pressure within the bladder from 5 to 10 cm. (fig. 3), and inhibition of respiration will be indicated in the bladder by a total lack of oscillation of the manometer (fig. 2).

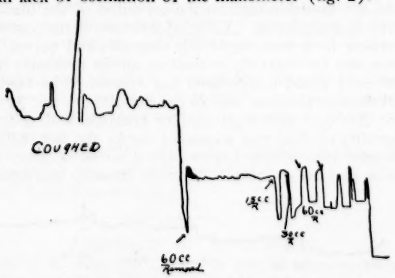

Fig. 4.—Tracing showing how violent contraction of the diaphragm in coughing will momentarily elevate the bladder pressure. The effect of removing varying quantities of fluid is also shown.

Sensory stimuli and psychic states may alter the bladder pressure curve and type of muscular contraction, depending on the receptivity of the subject and the degree and nature of the impulse. These factors were recognized by Mosso and Pellacani,[10] who believed that the bladder served as a sensitive recorder of the emotions, and on the evidence offered by these investigators the bladder has been termed an esthesiometer. Though I have repeatedly demonstrated a variation in the bladder contractions by a variety of intensive psychic and sensory stimuli, I believe this is the result not of emotional shock but of an indirect stimulation of the respiratory center which temporarily inhibits respiratory movement. The pronounced manner in which alteration of the depth and character of respiration affects bladder contractions may be seen in the accompanying diagrams. Intensive laughter increases bladder pressure through violent contraction of the diaphragm, which increases the intra-abdominal pressure and brings on urination in those with a low threshold of resistance. If the bladder were a sensitive end-organ, as claimed by some, the installation of cold water (50 F.) would have more than a slight tonic effect.

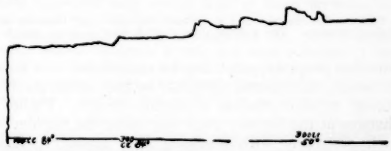

Fig. 5.—Contraction of the bladder filled with warm fluid, 84 F. (left side of tracing), and that obtained with cold fluid, 50 F. (right side of tracing).

One is able to picture the process of increased bladder pressure in prostatic hypertrophy more clearly if it is compared with the heart in aortic stenosis, as Genouville[11] has done and as I have done, with some modification, in the accompanying tabulation.

Comparison of Process of Increased Bladder Pressure with Heart Action in Aortic Stenosis

	Heart	Bladder
First period.....	Eusystole Increase of heart sounds	Increase of frequency
Second period....	Hypersystole Increased action of heart Enlargement	Marked frequency, enlargement of bladder
Third period.....	Hyposystole Failing heart	Bladder dilating Residual urine
Fourth period.....	Asystole Weak contractions	Large retention of urine

To estimate the proper rate for emptying the overdistended bladder, I first tested the ability of the bladder muscle to contract following the removal of varying quantities of urine and found that the removal of 30 cc. of the bladder content will effect a temporary drop in the pressure varying from 5 to 30 per cent, depending on the ability of the bladder muscle to stretch and on any associated infiltration or pathologic change of the bladder wall, such as diverticula and stone. The removal of small amounts of fluid will often cause the bladder pressure to rise not only to its previous level but to a higher level, and this increase of pressure exemplifies the expulsive quality of the bladder muscle (fig. 7). By allowing the bladder to empty itself a drop at a time, I obtained a curve which not only records a continued drop in pressure but also preserves the rhythmic bladder waves. The conclusion must then be drawn that decompressing the bladder by the drop method is safest, for it allows the bladder muscle to contract in the most physiologic manner and prevents shock by reducing gradually the intrapelvic and intraureteral pressure.

10. Mosso and Pellacani: Sur les fonctions de la vessie, Arch. ital. de biol. **1**: 97, 1882.

11. Genouville, F. L.: La contractilité du muscle vésical, Paris, Asselin & Houzeau, 1894.

In the experimental animal (dog), the bladder pressure may be estimated if the factors of the equation as developed by Elliott [12] are given.

$P = \frac{\text{intravesical pressure} \times \text{radius}}{2 \times \text{thickness of wall}}$ This formula implies that the bladder has an equal capacity for stretching and contracting; it can be applied only to experimental animals. In man, the neck of the bladder, which bears an important relation to the ability of the fundus to

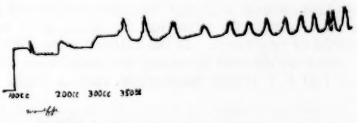

Fig. 6.—Tracing showing a periodic elevation and lowering of the bladder pressure. The average time of each wave is forty seconds.

function properly, must also be considered. In normal urination, the internal sphincter relaxes when the intravesical tension reaches a certain height. Pathologic changes at the bladder neck may cause the bladder wall to hypertrophy with resulting high bladder pressure, or it may inhibit the contractile power of the bladder muscle and cause a low bladder pressure. The normal bladder attempts to empty itself when the pressure reaches an average of 13 cm. of water, though it may range from 10 to 16 cm. of water. In cases of prostatitis there is a low pressure curve, even though the bladder capacity is small. In prostatic hypertrophy with large residual and muscular hypertrophy, the bladder pressure is usually high. The following case

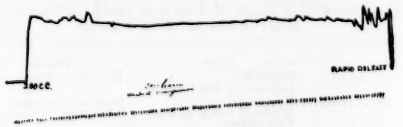

Fig. 7.—Gradual reduction of bladder pressure by drop method in a case of chronic prostatitis. Each space in timer represents five seconds.

illustrates the great fluctuation which a bladder may undergo and illustrates the importance of gradual continuous decompression.

In a man with a retention of 1,000 cc. and a bladder pressure of 10 cm., decompresion was done by the drop method during the day but the patient removed the catheter himself during the night. The next day his bladder pressure was 15 cm., and the bladder tumor was considerably reduced. On the second and third days the pressure was 35 and 23, respectively, and on the fifth day the pressure had dropped to 16 cm. with a residual urine of 400 cc. This variation in pressure can be explained if the classic illustration of Genouville is considered. On the first day the retention was large and the pressure low because his muscle had lost all its tone, but, after the muscle regained its power to contract, it first overcontracted and then gradually returned to normal.

There is a considerable variation in the reports of the amount of bladder pressure found in the functional pollakiurias. L. R. Muller [13] presents a chart representing the bladder pressure in pollakiuria as 65 cm. for 100 cc.; 12 cm. for 200 cc., and 75 cm. for 300 cc. The rapid ascent and descent of the curve gives it the appearance of a temperature chart in sepsis. These observations I have been unable to verify and believe that this atypical curve represents an error in technic which may be accounted for by the following explanation: While the bladder pressure is being recorded, the bladder neck is often unduly stimulated, and should the prostatic urethra be hypersensitive, as it so often is in pollakiuria, it will prompt the desire to void and a sharp sudden rise in bladder pressure will be noted. If the manometer tube is 100 cm. in height, the bladder will lack sufficient force to cause the fluid to flow over the top. After the fluid is held at this abnormal level for a short interval, the bladder muscle fatigues and the pressure will drop suddenly. Such periodic fluctuations really represent the effort of the bladder to empty itself and are not to be taken as the intracystic pressure.

Bladder pressure is an indicator of the physiologic activity of the bladder muscle and, as such, will aid in the diagnosing of functional and organic bladder conditions. Schwarz has made a most valuable clinical study of the bladder pressure and has shown the relation

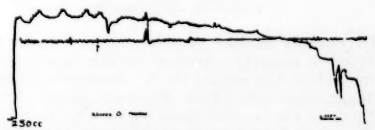

Fig. 8.—Gradual reduction of bladder pressure by the drop method with the maintenance of the bladder wave. The straight horizontal line represents the respiratory wave.

of the tone of the bladder wall to sphincter and vice versa. Rose,[14] with the aid of his instrument called the cystometer, has also studied the bladder pressure and finds it an aid in differential diagnosis. But bladder pressure in itself cannot serve as a diagnostic agent, any more than an increased blood pressure alone can be used to determine a lesion. Bladder pressure, to be of value, must be correlated with the bladder capacity and the available data on the condition of the bladder, urethra and adnexa. A case of stricture of the posterior urethra in a man, aged 30, demonstrated to me the necessity for carefully evaluating all the necessary data before I could comprehend my results. The bladder pressure in this case was 25 cm. for 100 cc., and 26 cm. for 200 cc. This high bladder pressure with a small quantity of fluid was accounted for by the fact that the bladder muscle had hypertrophied so as to force the urine past the stricture. After the stricture was dilated,

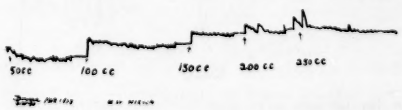

Fig. 9.—Effect on bladder pressure of varying quantities of fluid, in a case of prostatitis. Pressure curve is much lower than normal. The bladder feels full with 250 cc. of fluid and has a pressure of 6 cm. of water.

the bladder capacity increased and the bladder pressure was considerably reduced. To evaluate bladder pressure, one must consider the age of the patient, the bladder capacity, the reaction of the bladder to varying quantities of fluid, and the site of the pathologic changes in the bladder.

12. Elliott: The Innervation of the Bladder and Urethra, J. Physiol. **35**: 367, 1907.
13. Muller, L. R.: Die Blaseninnervation, Deutsches Arch. f. klin. Med. **128**: 81, 1918.
14. Rose, D. K.: Determination of Bladder Pressure with the Cystometer, J. A. M. A. **88**: 151-156 (Jan. 15) 1927.

Bugbee,[15] in a study of 1,066 cases of urinary frequency in women, found that in thirty-four cases, or 3.1 per cent, there was no demonstrable lesion and classified them as bladder neuroses. His diagnosis was arrived at by excluding all known possible causes. A more positive method would be the bladder pressure curve, which would demonstrate the capacity of the bladder to retain varying quantities of fluid and the power of the bladder muscle to expel it. If there is no evidence of urethral, cystic or central nervous system involvement, and the bladder pressure curve falls within normal range, then one may more certainly point to the psychic system as the more likely cause of the apparent local condition.

SUMMARY

The so-called bladder contraction is due to the periodic intra-abdominal waves which are caused by contraction of the diaphragm. Ordinary psychic states and sensory conditions do not affect the bladder directly, although there is a temporary obliteration of the normal bladder wave. This is the result of inhibition of respiration which controls the intra-abdominal pressure and the bladder wave. Intense psychic reactions will greatly augment respiration and stimulate urination by increased intra-abdominal pressure waves. Violent contraction of the diaphragm, as in coughing, will greatly augment the bladder pressure.

Decompressing the overdistended bladder by the drop method is simple to perform and conforms to physiologic principles. The bladder wave is maintained and there is no sudden drop in pressure. Frequent removal of small quantities lessens the power of the muscle to exercise its maximal power of contraction.

Decompression by the drop method obviates the necessity of frequent catheterization.

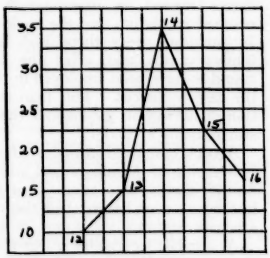

Fig. 10.—Variation of bladder pressure, in centimeters of water, in a case of chronic retention, when the decompression is not carried out by the continuous drop method.

185 North Wabash Avenue.

ABSTRACT OF DISCUSSION

DR. D. K. ROSE, St. Louis.: In clinical interpretation of bladder wall function, it is undoubtedly much better to speak of "bladder wall resistance" than of "bladder pressure." The latter term suggests a definite entity such as blood pressure. Bladder pressure is different; it must be checked against sensation and extraneous influences. Also it must be measured as a total curve beginning with the first filling drop to full capacity without giving the organ a chance to accommodate any given amount. I believe that the pupillary reflexes demonstrate the antagonistic action of the two autonomic systems best. The sympathetics dilate and the parasympathetics contract, the resultant size of the pupil of the eye being the balance between the action of the two. The nerve supply of the bladder is constant and similar in action. That is, the parasympathetics contract and the sympathetics inhibit. I have recently been informed by Dr. Hinsey, working with Dr. Ranson at Northwestern University, that they have shown that the parasympathetics and sympathetics act entirely separately. That is, there is no crossing of the nerve supply. It is obvious that this would be of great value to us as we would have two separate and distinct entities in considering bladder innervation. This nerve control undoubtedly extends further and can be proved for the ureter. I think that in the type of case presented by Dr. Hinman of dilated ureter, as well as in Dr. Herbst's case of vesical neck contraction, the parasympathetic overbalance is the chief factor. In Dr. Herbst's case, the fibrosis of the internal sphincter occurred secondary to infection plus the trauma of contraction. Dr. R. C. Graves of Boston has shown that there are active and passive types of normal bladders. We shall undoubtedly find that these active and passive types occur in certain types of habitus associated with certain types of blood pressures, and visceral and vascular innervation. Dr. Hirsch has made an outstanding contribution in proving that Dr. Scott's ureteral catheter bladder drainage is safe and most valuable. I have used this method since receiving Dr. Hirsch's paper for review, leaving a number 5 French ureteral catheter in the bladder for twenty-four hours and then replacing it by a urethral catheter.

DR. FRANCIS H. REDEWILL, San Francisco: Dr. Hirsch's tracings clearly point out the bladder pressure waves due to respiration, as well as the effect of coughing and laughing on bladder pressure. He makes one statement which is open to question. He says: "Rose, with the cystometer, has also studied the bladder pressure and finds it to be an aid in differential diagnosis, but bladder pressure in itself cannot serve as a diagnostic agent." On the contrary, with the new Redewill cystometer, many bladder conditions can be diagnosed and one bladder condition, the tabetic bladder, even in the presence of a negative Wassermann reaction and other masked conditions, can often be diagnosed in no other way.

DR. MEREDITH F. CAMPBELL, New York: In 1920 we did our experimental work along this line, making observations in twenty-five cases of acute retention due to prostatic hypertrophy. A catheter was inserted into the bladder and attached to a three-way stopcock manometer. The urine was withdrawn ounce by ounce and manometric readings were taken with the withdrawal of each ounce. We found that in all cases the pressure dropped 25 per cent with the first ounce withdrawn, and in all cases by the withdrawal of 4 ounces the pressure was reduced 50 per cent. In some cases a 50 per cent reduction in bladder pressure followed the withdrawal of only 2 ounces. From this we deduced that most of the renal shock and upset was caused by the sudden withdrawal of the first 5 ounces or so. Gradual decompression of the distended bladder by the method of von Zwalenburg, also described by Bumpus and Foulds, has been found most satisfactory for practical use. We have also used the indwelling ureteral catheter in the bladder for gradual decompression and have had good results with this method, although at no time has one any idea of what the intravesical pressure is or when this pressure has reached the normal limits. Regarding atony of the bladder wall, I will cite one case. A man with acute retention was admitted with 64 ounces in the bladder. A connection was made with a manometer and we evacuated the bladder over a period of about one hour. After the manometer first showed no bladder pressure we withdrew 24 ounces, indicating the muscular flabbiness or atonicity so often accompanying prolonged vesical distention.

DR. EDWIN W. HIRSCH, Chicago: I still contend that bladder pressure is of diagnostic significance, and has somewhat the same value that blood pressure has in the diagnosis of lesions in the cardiovascular system. High blood pressure does not indicate the site of the lesion causing it. An abnormal bladder pressure curve indicates hyperfunction or hypofunction of the bladder muscle and is an adjuvant to the other diagnostic methods we have at hand. Many times it is difficult to decide whether retention is due to a prostatic hypertrophy, to prostatitis, or to a cord lesion. The cystoscopic evidence may not be helpful. Here the bladder pressure curve will present information of value. All of my tracings have been obtained from human beings. It is difficult to correlate

15. Bugbee, H. G.: Frequency of Urination in Women, J. A. M. A. **68**: 693 (March 3) 1917.

the physiology of urination in animals with that of man because the innervation in the different animals shows gross variation and is not under the control of the will as it is in man. Bladder pressure indicates the functional capacity of the bladder muscle, and allows us to classify organic and functional urinary conditions intelligently.

THE EPIDEMIOLOGY OF TYPHOID*

C. F. KENDALL, M.D.
AUGUSTA, MAINE

The subject of this paper may be rather misleading, as I have no intention to go into the epidemiology of a subject that is so well known. Although the number of cases of typhoid has been markedly reduced in the last twenty to twenty-five years, there occasionally

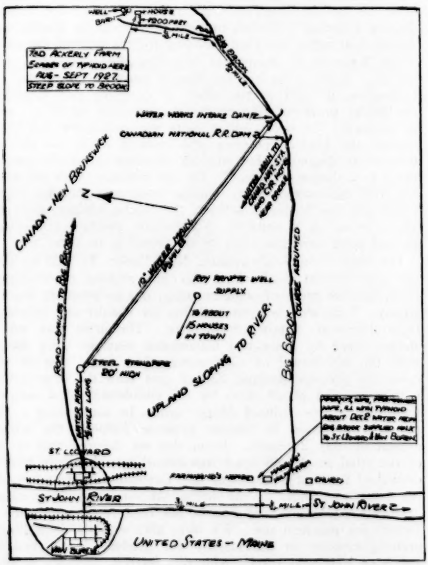

Fig. 1.—Relative location of Van Buren, Maine, and St. Leonard, N. B., and of typhoid cases in Van Buren.

occurs an epidemic or endemic which rather startles those who are brought into direct contact with it, or those who see perhaps that they may be affected directly or indirectly.

Typhoid has a faculty of appearing in most unexpected places, and often sporadic cases occur in localities where there has not been a case for years. It is not necessary to mention the reduction in this disease with the advances in the application of sanitary science. With improvement and introduction of sanitary water supplies and sanitary handling of milk, milk products and other foods, typhoid has gradually diminished. But it has not yet been given its knockout blow.

Until recent years but little check-up has been made on the release of the typhoid patients, especially those who are employed as food handlers, to see that they do not go out and mingle with their companions as typhoid carriers.

The period over which a typhoid convalescent may remain temporarily as a typhoid carrier varies greatly from a few weeks to several months. In an epidemic in the city of Bath, Maine, four years ago, caused by a carrier employed as a milker on a milk farm, twelve out of forty-four patients recovering from typhoid remained positive for six months after the onset of the disease. The others cleared up in from three to four and five months.

If, from the observations and experiments made during the last few years that 1 or 2 per cent of all typhoid patients remain carriers, or, as in one of our states the authorities claim that 10 per cent remain carriers, then there must be thousands of carriers running at large under no restrictions, who may be a menace at any time.

This is a problem which every health officer is trying to overcome by restricting all typhoid convalescents until the officials are satisfied that they no longer remain carriers, or, if they remain carriers, to keep them under restriction.

In the winter of 1926, typhoid in one of the lumber camps caused an investigation to be made, which resulted in finding that the cook was a typhoid carrier. In previous years there had been typhoid in other lumber camps, and, after due inquiry, this cook was found to have been employed in these camps at the time the cases occurred. This man submitted to the operation of having his gallbladder removed last July, but he still remains a carrier.

A cook employed in one of the chapter houses at the University of Maine caused fourteen cases, with two deaths, three years ago. This man does not give a history of ever having had the disease, but he is still a carrier.

At our last legislature it was possible to get an appropriation for the care of typhoid carriers, and the last two are receiving aid from this appropriation.

Late last summer, nine out of seventeen men working on a state highway crew developed typhoid. These men lived at home, but ate their lunches at noon away from home. These nine men all became sick between September 10 and 17. Investigation disclosed that the water used for drinking purposes was obtained from five sources, all showing surface pollution. One well was located under a house in which a man (A) and his sister lived. Later a man (B), his wife and daughter came to live at this place, the man and his daughter having had typhoid seven years before. The toilet, a flush-closet, emptied into a cesspool about 30 feet from the well. There was also a dry earth toilet 20 feet from the well. There was another well, about 40 feet from the cesspool, which showed large bacterial pollution.

A tenth member of the crew, who had ceased employment in this crew before they became sick, went to work as a dish washer and food handler in a summer camp of 150 people from outside the state. Early in October this man, having felt poorly for a week, went to a hospital and was found to have typhoid. Within a short time five cases of typhoid occurred among inmates of this camp, who had returned home.

The milk supply was from the farm where the two wells were located. A handled the milk for about three days, and B's daughter, during a period of four weeks, had handled the milk daily, straining the milk when it

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 14, 1928.

came in from the stable. B also had milked more or less during this period.

B often carried the water from his house for the use of the crew in which he worked.

B and his daughter were probably the cause of the nine cases of typhoid in the road crew, and of the other six cases—one patient being the former member of the road crew, and the five cases occurring among the camp inmates.

Examination of stools and urine of these three people gave suggestive results on Endo and double sugar mediums, but it was not possible to get positive agglutination, although examinations were carried on over a period of several months.

The Montreal epidemic of a year ago was startling in its number of cases reported, and became renowned as one of the worst epidemics of the present century. In Maine there was considerable apprehension of the results, because many people from Montreal spend their summer vacations in Maine; but there was only one case that could be traced to Montreal.

Last winter, however, there was occasion to be considerably worried from another epidemic in a small town in New Brunswick, bordering on Maine, where, out of a population of from 1,200 to 1,500, there were nearly 200 cases of typhoid. The health officer of New Brunswick wrote, March 6, 1928:

> The origin of the epidemic was that a certain family living in the catchment-area of the water supply of the town, for some reason, had for some little time made use of, as drinking water, the highly polluted water of the St. John River, contracted the disease, and, hence, the entrance of the typhoid pollution into the town supply. . . . The number of cases in all was in the neighborhood of 200, and the number of deaths due to the epidemic was, I believe, about seven. This number is a little bit uncertain, as several of these deaths did not occur in St. Leonard itself but were transferred to more or less nearby hospitals.

Early in December, as the result of a positive Widal report from our branch laboratory in Aroostook County, one of our district health officers was sent to investigate the cause of the case. The result was that, December 10, he found that there were at that time eighty-two cases at St. Leonard in New Brunswick, and that the health authorities were offering free immunization to the inhabitants of that town. He also found five cases in two towns in Maine, all traceable to New Brunswick.

Realizing that there might be a difficult problem to handle, and believing that, as it was an international affair, we should receive aid from the federal authorities, we wrote to the surgeon general of the United States Public Health Service, asking that some one be sent from his service to assist in making a survey. At the same time the health officer of New Brunswick was asked information as to what had been done and what precautions had been taken to prevent the spread, and what was the source. Fortunately, November 29, the deputy collector of customs placed a local embargo on milk and cream from Canada. Later, on a recommendation of the U. S. Public Health Service, the U. S. Department of Agriculture placed an embargo against the importation of milk and milk products within a radius of 50 miles of St. Leonard.

Our department, together with Mr. E. C. Sullivan, a sanitary engineer sent by the U. S. Public Health Service, and with the aid of the health authorities of New Brunswick, worked out the following facts: In August and September, five cases of typhoid developed in the family of Ted Akerly, who resided on the catchment-area of the water supply of the town. These people had been using the highly polluted water of the St. John River for some reason or other not understood. As near as can be found, no special precautions had been taken to sterilize the excretions of these people, as no physician had been employed, and no reports were received from these cases.

The summer and fall was an especially dry one, without much rain until November, when unusual large amounts fell. It is thought that some of the excreta must have become washed into Big Brook, which furnished the water supply of St. Leonard.

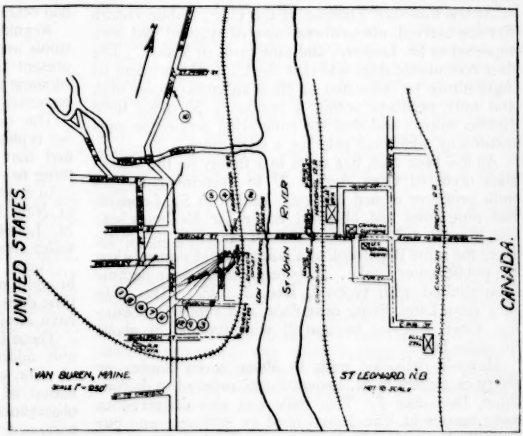

Fig. 2.—Water supply systems in St. Leonard, N. B., indicating possible relationship of certain typhoid cases to St. Leonard epidemic and Van Buren cases. Cases are indicated by numbers in circles.

It was not until the epidemic had a considerable start that it became known to the health authorities of New Brunswick. As soon as it became known, samples of water taken from the town supply showed high pollution, and an order was issued to boil all water used for drinking purposes for thirty days, as it became apparent from the general distribution of the cases, and from an analysis, that the water supply must be the cause. The manufacture and vending of a species of ginger ale, or some such drink made on the basis of the town water, was at once cut off. One milk vender, whose family was attacked, was cut off from selling his milk.

This epidemic was really of short duration, owing to its origin, but it attracted considerable attention. The health officer of New Brunswick stated that the epidemic lasted from late November and disappeared as an epidemic about the middle of January. This was less than two months. In St. Leonard between 600 and 700 of the inhabitants were given typhoid prophylaxis.

There were in Maine sixteen cases traceable to St. Leonard. Twelve of the patients lived in Van Buren, the town immediately across the St. John River. The

other four were inhabitants of four other towns, who had been visitors to St. Leonard.

Because of the fact that traffic across the international bridge is large, free vaccination to the inhabitants of this district was offered during the emergency, and, as the district is largely of French population, notices were posted in both French and English, notifying the people of the epidemic, and for them to keep away from St. Leonard and vicinity. The physicians in the town were cooperative and offered their services in giving the inoculations. The cooperation of the Catholic priests was obtained, and on Sunday morning at the various masses they spoke of the dangers and recommended that the people avail themselves of the opportunity of full inoculation. As a result, about 800 were given typhoid immunization.

The extent in which water or milk supply entered into the cases in Maine as a causative factor was of especial interest.

At the time Mr. Sullivan of the U. S. Public Health Service arrived, ninety-three cases of typhoid had been reported in St. Leonard, and nine cases in Maine. The first recommendation was that the U. S. Department of Agriculture be requested to place an embargo on milk and milk products within a radius of 50 miles until further notice, and that the emigration service be augmented by additional help for a short time.

As has been said, five cases in a family on the watershed occurred from August 27 to September 10. A milk producer named Marquis, located in St. Leonard, had nine cows and obtained water for his household use, for the milk business and for watering the cattle from the same Big Brook at a point some distance below the public water intake. This man and his wife became incapacitated with typhoid, Dec. 2, 1927. The wife of a farm hand, living next door, and similarly obtaining water, likewise became ill with typhoid at about the same time.

Marquis delivered milk to about seven houses or thirty customers in St. Leonard until ordered to discontinue, December 7. This milk was also delivered to eight houses in Van Buren until an embargo was put on milk, November 29, by customs officials. Of twelve patients from Van Buren, five had consumed some of Marquis' milk, but had not visited St. Leonard; four of these belonged to the same family. Four others gave a history of the use of Marquis' milk and of a trip to St. Leonard. The rest of the patients had made trips to St. Leonard but had not used Marquis' milk. In the other four cases, which occurred in four other towns, trips had been made to St. Leonard, and water had been consumed.

The dates of sickness were as follows: December 1, two; December 3, one; December 5, two; December 8, two; December 9, two; December 12, one; December 15, one; December 16, one; December 23, three; December 30, one. December 22 and 24, two patients died.

All of the cases occurred in the month of December, and no reports have been received of any other cases.

The ages of these patients range from 1 year to 75 years.

The five who took the milk of Marquis, and had not been to St. Leonard, became sick on the 5th, 8th and 9th, all of them in less than two weeks after the milk supply was cut off, this being on November 29.

Of the four who lived outside Van Buren, two lived from 20 to 25 miles away, and the other two from 3 to 6 miles away, and were frequent visitors to St. Leonard.

The analysis of the water supply of St. Leonard, which came from Big Brook, showed pollution, December 6, so at once an order for the users to boil all water for thirty days was issued.

The epidemic was over in less than two months, with nearly 200 cases out of a population of about 1,200 in the township receiving water supply, and 300 in the rest of the township, most of the cases being in the town itself.

Twelve of the sixteen cases in Maine were in the town of Van Buren, with a population of nearly 5,000, immediately across the international bridge. All sixteen cases were reported during the month of December.

One of the patients from Van Buren worked in a store from which butter used by six of the patients from Van Buren was purchased. Whether this has any bearing on these cases is, of course, a question, as they had other chances of contracting the disease.

Regulations require at least three successive negative stools and urine for release from observation. At the present time these have been obtained from all cases. In some instances, many more than the three have been requested.

The question of examination of stools and urine for typhoid is very important, and I have become satisfied that daily examination is the only satisfactory thing to do for final release.

In a letter received May 25, from the health officer of New Brunswick, I was informed that the town of St. Leonard had installed a chlorinator in the town water supply.

There were several interesting facts which were brought out in the investigation of these cases which time does not permit to enter into. All health officers have similar problems in their own states and cities.

These few selections from our problems in Maine are only additional data as to the need of pasteurization of milk, chlorination of water supplies, careful examination of typhoid convalescents before release from observation, and the need of careful physical examination of food handlers.

State Department of Health, State House.

ABSTRACT OF DISCUSSION

DR. GEORGE H. BIGELOW, Boston: With the pressure for broadening the duties of the health department there is danger, I think, that some of the fundamentals of communicable disease control may be neglected somewhat. We in Massachusetts have been interested in typhoid because of a tragic local experience. I am interested in the emphasis that Dr. Kendall puts on the importance of cultures for release from quarantine. This would help to recognize all carriers at the source of production. In Massachusetts we have a very quaint arrangement: each city and town makes its own regulations. We are attempting to have more local requirements for release cultures. Certainly, it would seem that the epidemiologic efficiency of a health department might be judged by the proportion of cases in which the source is identified. But there are many difficulties. In the last seventeen years in Massachusetts, 28 per cent is the most that we have traced in any year, and some years it has been as low as 13 per cent. In 1927 we recognized 26 per cent. We attempted to divide the source of the infection into five heads: water, milk, food, contact, and "unfound," and we have subdivided each of these into "carrier," "case" or "unknown." In 1927, one half the sources traced were due to carriers and one half to cases. For contact with cases we send our routine form letters advising the head of the family to have all contacts inoculated. We heard a year ago of a supereducated nurse who did not believe in inoculation. That she got the disease makes

us believe in Santa Claus. The cases were divided roughly, according to etiology, as follows: A third were due to milk, a third to food and a third to contact. It is a somewhat contradictory situation that I find myself in in relation to the typhoid situation. I am more anxious to be effective about the carrier we know about than to find more carriers, because I think that one thing that brings the health officers into contempt more than any other factor is to have a known carrier still producing cases of typhoid. We should be more effective in controlling those we know about. But if we do effective epidemiologic work, we must recognize more carriers and we must handle them. This increases the difficulty of our problem.

DR. C. F. KENDALL, Augusta, Maine: In our laboratory at the present time we are examining all blood cultures negative for typhoid for undulant fever. We believe that this is very important, because we have found three cases of undulant fever in the state, two of which were confirmed by the laboratory in Washington. We have here another argument for the pasteurization of milk, but we must remember that after milk is pasteurized it needs to be handled in a clean way because the Montreal epidemic was due to pollution of pasteurized milk, or milk supposed to have been pasteurized.

THE HORMONE TEST FOR PREGNANCY

REPORT II *

A. C. SIDDALL, M.D.
CLEVELAND

In a preliminary report,[1] the technic of this suggested test for pregnancy was outlined and the results in forty-five cases were given. This report deals with ninety-seven additional tests, the results of which, in general, confirm the previous observations. In this communication, three points will be considered: (*a*) the criteria for the test; (*b*) the summary of results with mention of special cases, and (*c*) the application of the test to determine the potency of commercial liquid extracts of ovary, placenta and pituitary.

THE CRITERIA OF THE TEST

Uterine Enlargement.—In the preliminary investigation, only one criterion was used to indicate a positive test; namely, the enlargement of the uterus of the injected test animal. The total mouse weight divided by the weight of the uterus with ovaries attached gives a ratio which serves as the index. If the ratio is above 400, the test is considered negative for pregnancy; if less than 400, the test is considered positive. In the present investigation, test mice weighing less than 18 Gm. were used because it was found that uninjected control mice weighing 18 Gm. and over frequently showed a ratio below 400, a finding that would be confused with a true positive obtained on smaller animals. In fact, an occasional control mouse weighing even 12 Gm. (mouse 183) may show a ratio below 400, and some of the erroneous tests in this series performed on mice between 12 and 18 Gm. may thus be explained (mouse 223). For the same reason a positive test might be obtained erroneously when gravid female serum is injected. The results indicate that the elimination of false positives may be effected by using mice that are positively immature sexually. In the list of uninjected control mice (table 3) it will be noted that, of those animals which exhibited a closed vagina, the ratio was always high, between 827 and 1,220. Engle and Rosasco [2] reported that ovulation, as indicated by the vaginal smear, usually occurs within twenty-four hours after the vaginal orifice is established. So for the practical purposes of this test, mice having an unopened vaginal orifice can be considered sexually immature. Engle and Rosasco [2] state that maturity of the mouse is reached in from twenty-eight to forty-nine days and the weights of such animals vary between 10 and 16 Gm. Other investigators [3] have reported a later onset of sexual maturity.

The factor causing the uterine enlargement is probably an ovarian or placental hormone. Allen and Doisy [4] have recently reviewed this subject. It has been shown that ovarian hormone causes marked uterine growth when injected into sexually immature test animals, whether normal [5] or ovariectomized.[6] The physiologic evidence indicates but does not prove that the uterine growth-promoting principle is similar, if not the same, in ovary, placenta and gravid female blood serum. Microscopic sections of these enlarged uteri indicate that the increase in weight may be due to the thickened mucosa which is thrown into deeper folds than the control, and hypertrophied muscular coats which are usually well differentiated. In brief, the enlarged uterus simulates a mature organ in structure.

Ovarian Enlargement (mouse 175).—In the "immature" mouse the injection of blood serum of pregnant women causes an enlargement of the uterus, but in the "mature" mouse it causes a striking enlargement of the ovaries.

This finding was especially true for sexually mature mice weighing 18 Gm. and over. In fact, 100 per cent of the mice weighing 18 Gm. and over that were injected with blood serum of patients positively pregnant showed ovaries definitely enlarged as compared with those of uninjected controls of corresponding weight. Injected mice weighing less than 18 Gm. showed inconstant or doubtful ovarian enlargement. Therefore, for the practical purposes of this test, ovarian enlargement is considered a reliable criterion for the presence of pregnancy, if the test animal is a mature white female mouse weighing 18 Gm. and over.

In mouse 192 there are many normal follicles in various stages of development. The interstitial tissue is small in amount and is composed largely of connective tissue rich in deeply staining, spindle shaped nuclei. One corpus luteum is present.

Mouse 175 received a total of 5 cc. of blood serum of a patient clinically three months pregnant. A follow-up examination four months later proved without doubt that she was pregnant. The ovary was markedly enlarged and the striking feature was the presence of many corpora lutea. Only a few large follicles were present. There was also a definite increase in the interstitial tissue. The connective tissue with deep staining, spindle shaped nuclei was present but obscured by other large round or polygonal cells with vacuolated cytoplasm and pale staining vesicular nuclei. These larger cells were similar to the cells of the normal cor-

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1. Siddall, A. C.: A Suggested Test for Pregnancy, J. A. M. A. **90**: 380 (Feb. 4) 1928.

2. Engle, E. T., and Rosasco, J.: The Age of the Albino Mouse at Normal Sexual Maturity, Anat. Record **36**: 383, 1927.

3. Kirkman, W. B.: The Life of the White Mouse, Proc. Soc. Exper. Biol. & Med. **17**: 196, 1920. Parkes, A. S.: The Age of Attainment of Sexual Maturity of the Albino Mouse, J. Roy. Micr. Soc., p. 315, 1925.

4. Allen, Edgar; and Doisy, E. A.: Ovarian and Placental Hormone, Physiol. Rev. **8**: 600, 1927.

5. Asdell, S. A., and Marshall, F. H. A.: Effect of Ovarian Hormone in Producing Proestrous Development in Dog and Rabbit, Proc. Roy. Soc. Med. **101**: 185 (March 1) 1927. Herrmann, E.: Monatschr. f. Geburtsh. u. Gynäk. **41**: 1, 1915. Allen, Edgar; and Doisy, E. A.: Induction of a Sexually Mature Condition in Immature Females by Injection of Ovarian Follicular Hormone, Am. J. Physiol. **69**: 577 (Aug.) 1924.

6. Fellner, O. O.: Experimentelle Untersuchungen über die Wirkung von Gewebsextrakten aus der Plazenta und den weiblichen Sexualorganen auf das Genitale, Arch. f. Gynäk., p. 641, 1913.

TABLE 1.—*Results of Hormone Test for Pregnancy* *

Patient						Mouse						
				Clinical Diagnosis								
Name	Sex	Age	Race	First Examination	Final Examination	Number	Serum, Cc.	Weight, Mg.	Uterus Weight, Mg.	Ratio	Size of Ovaries	Result of Test
I. B.	♀	23	White	1 mo. ?	Pregnant	79	5	13,582	56	242	....	Positive
V. S.	♀	20	White	8 mo.	Pregnant	85	3	13,450	35	384	....	Positive
J. G.	♀	34	White	8 mo.	Pregnant	86	4	17,302	62	280	0	Positive
I. P.	♀	20	Colored	5½ mo.	Pregnant	91	5	16,225	65	249	0	Positive
K. T.	♀	38	Colored	5 mo.	Pregnant	92	5	22,165	110	201	+	Positive
F. S.	♀	29	Colored	3½ mo.	Pregnant	94	5	16,310	42	263	0	Positive
A. C.	♀	27	Colored	7 mo.	Pregnant	95	5	17,405	87	200	0	Positive
M. S.	♀	26	Colored	7 mo.	Pregnant	96	5	16,685	70	238	++	Positive
E. C.	♀	16	Colored	3 mo.	Pregnant	98	5	15,875	62	256	....	Positive
I. T.	♀	38	White	8½ mo.	Pregnant	103	5	17,340	102	171	+	Positive
K. R.	♀	25	White	3 mo.	Not pregnant	106	5	18,651	137	136	+ ?	Positive
M. H.	♀	36	Colored	5 mo.	Pregnant	109	5	20,325	135	150	++	Positive
S. B.	♀	24	Colored	4 mo.	Pregnant	110	5	16,932	62	273	+	Positive
L. W.	♀	23	Colored	3 mo.	Pregnant	111	5	15,957	72	221	+	Positive
A. D.	♀	23	Colored	?	Not pregnant	112	5	17,290	70	247	0	Positive
M. H.	♀	32	Colored	2 mo.	Pregnant	113	5	19,565	70	279	+	Positive
E. D.	♀	20	Colored	7 mo.	Pregnant	114	5	20,190	57	354	+	Positive
E. W.	♀	24	Colored	4 mo.	Pregnant	115	5	19,950	126	158	+	Positive
M. S.	♀	22	Colored	2 mo.	Pregnant	116	5	20,735	67	309	+	Positive
R. F.	♀	19	Colored	1 mo.	Pregnant	117	5	18,480	83	222	+	Positive
M. C.	♀	27	White	4½ mo.	Pregnant	120	5	17,980	127	141	++	Positive
A. L.	♀	19	Colored	5½ mo.	Pregnant	121	5	16,925	62	272	++	Positive
L. H.	♀	29	Colored	5 mo.	Pregnant	122	5	16,621	72	230	++	Positive
L. H.	♀	27	Colored	6 mo.	Pregnant	125	5	17,455	90	193	++	Positive
G. H.	♀	22	Colored	4½ mo.	Pregnant	126	3	12,765	36	354	0	Positive
A. J.	♀	24	Colored	7 mo.	Pregnant	127	5	17,362	60	289	0	Positive
H. B.	♀	19	Colored	8 mo.	Pregnant	128	5	16,645	53	314	+	Positive
M. R.	♀	27	Colored	6 mo.	Pregnant	129	5	17,465	140	124	+	Positive
B. E.	♀	..	.....	6 mo.	Pregnant	130	5	16,082	52	309	0	Positive
N. H.	♀	40	White	7½ mo.	Pregnant	136	5	16,965	75	223	+	Positive
A. F.	♀	29	White	7½ mo.	Pregnant	138	5	15,780	56	281	++	Positive
K. C.	♀	35	White	8 mo.	Pregnant	140	5	18,725	73	256	+	Positive
A. B.	♀	27	Colored	4 mo.	Pregnant	141	5	20,210	130	155	++	Positive
I. S.	♀	23	Colored	6 mo.	Pregnant	143	5	20,050	131	153	+	Positive
E. M.	♀	24	Colored	4 mo.	Pregnant	144	5	19,350	91	212	++	Positive
A. C.	♀	..	.....	2½ mo.	Pregnant	147	4.6	13,167	37	355	+	Positive
L. D.	♀	22	Colored	2½ mo.	Pregnant	150	5	21,715	149	145	++	Positive
R. N.	♀	19	Colored	2 mo.	Pregnant	151	5	22,210	135	164	++	Positive
E. M.	♀	..	.....	.....	Pregnant	152	5	19,765	125	158	++	Positive
D. K.	♀	35	White	.....	Pregnant	154	5	20,560	182	112	+	Positive
A. K.	♀	33	White	3 mo.	Pregnant	159	5	15,991	42	380	+	Positive
W.	♀	29	Colored	2 mo.	Pregnant	167	5	16,135	75	215	++	Positive
R. C.	♀	30	Colored	?	Pregnant	169	5	15,575	65	239	0	Positive
L. M. H.	♀	28	Colored	5 mo.	Pregnant	170	5	16,942	65	260	0	Positive
S. B.	♀	25	Colored	5 mo.	Pregnant	171	5	14,230	43	330	+	Positive
L. S.	♀	24	Colored	4 mo.	Pregnant	172	5	17,385	76	228	0	Positive
W. W.	♀	21	Colored	4 mo.	Pregnant	174	5	16,737	58	288	0	Positive
F. D.	♀	22	Colored	3 mo.	Pregnant	175	5	17,610	65	270	+	Positive
N. W.	♀	20	Colored	5 mo.	Pregnant	176	5	15,801	49	322	0	Positive
M. G.	♀	25	White	1 mo.	Pregnant	178	5	19,698	60	328	+	Positive
G. H.	♀	24	Colored	2½ mo.	Pregnant	179	5	18,545	50	331	+	Positive
P. J.	♀	30	Colored	5 mo.	Pregnant	181	5	23,732	105	226	++	Positive
B.	♀	19	Colored	2 mo.	Pregnant	182	5	18,383	52	353	+	Positive
L. D.	♀	25	Colored	5 mo.	Pregnant	187	4.5	18,191	81	224	+	Positive
R. M.	♀	24	Colored	4½ mo.	Pregnant	186	5	18,862	64	294	+	Positive
P. H.	♀	33	White	2 mo.	Pregnant	191	5	18,190	79	230	+	Positive
M. M.	♀	45	White	7½ mo.	Pregnant	193	5	21,334	140	152	++	Positive
M. M.	♀	26	White	5 mo.	Pregnant	194	5	17,698	55	321	+	Positive
M. H.	♀	35	Colored	7 mo.	Pregnant	195	5	14,082	47	299	+	Positive
A. B.	♀	..	White	2 mo.	Pregnant	197	5	17,926	85	210	+	Positive
F. T.	♀	34	White	1 mo. ?	Pregnant	199	5	19,786	112	176	+	Positive
L. H.	♀	25	White	2 mo.	Pregnant	201	5	23,182	155	149	+	Positive
L. E.	♀	24	Colored	4 mo.	Pregnant	208	5	14,093	43	327	+	Positive
M. K.	♀	24	Colored	8 mo.	Pregnant	209	4	12,443	32	388	+	Positive
M. G.	♀	22	Colored	7 mo.	Pregnant	210	5	15,878	42	378	+	Positive
G. K.	♀	15	Colored	.....	Pregnant	211	5	14,334	46	311	+	Positive
R. C.	♀	20	White	7 mo.	Pregnant	214	5	11,195	30	373	+	Positive
R. C.	♀	16	Colored	7 mo.	Pregnant	215	5	16,050	44	364	+	Positive
H. C.	♀	31	Colored	7 mo.	Pregnant	216	5	12,380	42	294	0	Positive
M. H.	♀	17	Colored	5 mo.	Pregnant	217	5	16,165	35	461	+	Positive
C. R.	♀	30	Colored	6 mo.	Pregnant	219	5	16,370	40	409	+	Positive
F. M.	♂	12	White	.....	Not pregnant	223	5	12,450	35	355	0	Positive
E. M.	♀	24	Colored	4 mo.	Pregnant	228	5	14,505	50	290	+	Positive
M. L.	♀	24	Colored	5 mo.	Pregnant	229	5	11,250	28	401	?	Positive
M. G.	♀	26	White	2½ mo.	Pregnant	234	5	12,391	40	309	0	Positive
M.	♀	23	White	5 days postpartum	Not pregnant	239	5	17,582	66	266	++	Positive
M. S.	♀	22	Colored	.....	Pregnant	241	5	20,265	65	311	++	Positive
M. L.	♀	16	White	3 mo. ?	Not pregnant	82	5	12,247	15	816	0	Negative
M. W.	♀	24	Colored	4 mo.	Pregnant	149	5	13,255	25	530	0	Negative
M. B.	♀	25	White	.....	Not pregnant	153	5	20,690	108	191	0	Negative
A. C. S.	♂	59	White	.....	Not pregnant	163	5	21,160	93	227	0	Negative
E. L.	♀	20	White	1 mo.	Not pregnant	192	5	17,227	27	638	0	Negative
K. S.	♀	22	White	1 mo.	Not pregnant	198	5	19,150	69	277	0	Negative
S. G.	♀	23	Colored	2 mo.	Not pregnant	202	5	23,622	135	175	0	Negative
M. B.	♂	58	White	.....	Not pregnant	235	5	13,236	11	1,208	0	Negative
C. H.	♂	65	White	.....	Not pregnant	206	5	12,947	11	1,177	0	Negative
A. J.	♂	58	White	.....	Not pregnant	207	4	12,477	10	1,247	0	Negative
E. S.	♀	22	Colored	8 mo.	Pregnant	220	5	13,229	30	440	0	Negative
L. S.	♂	43	White	.....	Not pregnant	221	5	14,573	16	910	0	Negative
W. R.	♂	..	White	.....	Not pregnant	224	5	13,492	27	499	0	Negative
M. S.	♂	52	White	.....	Not pregnant	225	5	14,413	12	1,201	0	Negative
S. S.	♂	47	White	.....	Not pregnant	226	5	11,491	12	957	0	Negative
J. W.	♂	..	White	.....	Not pregnant	227	4	13,418	9	1,490	0	Negative
M. P.	♀	26	.....	1 mo. ?	Pregnant	230	4	10,458	15	804	0	Negative
W. L.	♂	..	.....	.....	Not pregnant	246	5	23,215	79	293	0	Negative
W. E.	♂	..	.....	.....	Not pregnant	247	5	19,423	45	431	0	Negative
A. S.	♂	..	.....	.....	Not pregnant	250	5	15,368	28	548	0	Negative

* 0, small- +, slightly enlarged· ++, markedly enlarged; ♂, male; ♀, female.

pus luteum. These large cells and the corpora cells take the fat stain, while the follicle cells do not. The increase in size, then, of these enlarged ovaries is due to the large number of corpora lutea, the increase in interstitial tissue and the presence of large follicles.

The factor causing this ovarian enlargement is not definitely determined. Smith and Engle [7] found that injections of anterior lobe of the pituitary into mice and rats caused enormous enlargement of the animal's ovaries, and they stated that the increase in size is due to the presence of many large follicles and corpora lutea. Evans and Long [8] found after long treatment of rats with anterior lobe of the pituitary that the ovaries were enlarged, as the result of many corpora lutea. Zondek and Aschheim [9] injected many organ extracts into mice and rats and found that only the anterior lobe of the pituitary caused this typical effect on the ovaries. Erdheim [10] has reported striking morphologic changes of the cells in the anterior lobe of the pituitary during pregnancy. Such changes may have resulted from or may be accompanied by hyperactivity, and for this reason are important in this connection.

TABLE 2.—*Summary of Results*

		First Series	Second Series	Total
(*a*)	Patients tested	57	146	203
	Incompleted tests	12	49	61
	Completed tests	45	97	142
(*c*)	Positive tests	25	77	
	Patients pregnant	26	73	
	Errors:	(1 in 26)	(4 in 77)	
(*b*)	Negative tests	18	20	
	Patients nonpregnant	19	17	
	Errors:	(1 in 19)	(3 in 20)	
(*d*)	Total error for all cases: 9 in 142			
(*e*)	Cases 3 to 4 months	3 (1 error)	7	10
	Cases less than 3 months	0	19 (1 error)	19
(*f*)	Earliest correct positive (patient 117)—thirty-four days after last menses			

Mouse 1 E shows that the uterine growth-promoting factor in placental extract is not the cause of the gross enlargement of the ovaries, for the ovaries of mouse 1 E are no larger than those of the noninjected control mouse of corresponding weight (mouse 245).

The evidence therefore supports the suggestion that the action of the hormone of the anterior lobe of the pituitary present in the blood may be responsible for the ovarian enlargement of the test animals. But until chemical isolation of this active principle from the blood is effected and tested in the same way, no positive statement about its identity can be made.

In summary, then, two criteria are presented to indicate the presence of pregnancy:

1. Gross enlargement of the mouse's uterus.
   (*a*) Reliable for sexually immature mice.
   (*b*) Ratio less than 400 constitutes a positive test.
   (*c*) Probably due to action of ovarian or placental hormone.
2. Gross enlargement of the mouse's ovaries.
   (*a*) Reliable for mature mice 18 Gm. and over.
   (*b*) Due, perhaps, to the action of the anterior lobe hormone of the pituitary.

This test, therefore, is not a specific test for pregnancy but simply a test for the probable presence of hormones that are probably increased in the maternal circulation during the gravid state. For this reason the designation "hormone test for pregnancy" is proposed.

SUMMARY OF RESULTS WITH SPECIAL CASES

The results are presented in table 1 and the summary in table 2, and the previously reported series [1] is included with the present series. It is significant that of a total of nineteen tests in women less than three months pregnant only one erroneous result was obtained. This indicates the value of the test early in pregnancy. There were nine erroneous tests in a total of 142 cases. However, one case in the first series and two in the second can be ruled out for practical purposes because patient 10 of the first group was post partum one day and patients 239 and 223 of the second group were post partum five days and male serum, respectively. With these three cases excluded, the error is only 6 in 139 cases. A larger series may alter these figures, but if the criteria here presented are followed, the error should remain low.

REPORT OF SPECIAL CASES

CASE 82.—M. L., a woman, aged 16, white, single, complained of no menses for four months with gradually enlarging abdomen. The clinical diagnosis was normal pregnancy of four or five months. The fetal heart was not heard. Mouse 82 was injected with 5 cc. of the patient's blood serum. The weight of the mouse was 12,247 mg. The weight of the uterus was 15 mg. The ratio was 816, which makes the test negative for pregnancy. Follow-up examination revealed that about two weeks following this test the patient entered another hospital, where a papillary cystadenoma of the left ovary weighing 8¼ pounds (3.7 Kg.) was removed. The patient was not pregnant, which confirmed the result of the test.

TABLE 3.—*Control Uninjected Mice*

Mouse	Weight, Mg.	Uterus Weight, Mg.	Ratio	Vaginal Orifice
102A	9,522	10	952	Open
123	19,735	48	411	Open
124	17,060	38	448	Open
134	18,902	100	189	Open
135	21,005	71	295	Open
162	21,190	64	331	Open
164	20,950	78	268	Open
165	20,765	155	133	Open
166	20,160	120	168	Open
161	20,635	57	362	Open
180	21,420	90	238	Open
183	12,780	32	399	Open
188	21,280	138	175	Open
200	20,334	55	369	Open
231	14,152	21	673	Open
232	11,178	7	1,596	Open
235	14,428	16	901	Closed
236	13,346	16	827	Closed
238	10,982	9	1,220	Closed
244	8,062	9	995	Closed
245	10,762	10	1,076	Closed
254	16,473	40	411	Open
255	12,560	22	570	Open
256	15,610	53	294	Open
217	17,222	60	287	Open
249	14,752	27	546	Open
261	16,936	138	122	Open
262	13,380	31	450	Open
263	16,975	132	128	Open
263	14,400	50	288	Open

CASE 89.—A woman, aged 24, married, white, complained of sterility. Artificial insemination was performed by Dr. Stone and the patient missed the next regular menstrual period. Ten days after this period was due, blood was taken for a test for pregnancy. The cervix was soft. Mouse 89 was injected with 5 cc. of the patient's blood serum. The weight of the mouse was 13,445 mg. The weight of the uterus was 15 mg. The ratio was 896, which is negative for pregnancy. Follow-up examination revealed that several days after the test was

7. Smith, P. E., and Engle, E. T.: Experimental Evidence Regarding the Rôle of the Anterior Pituitary in the Development and Regulation of the Genital System, Am. J. Anat. **40**: 159 (Nov.) 1927.
8. Evans, H. M., and Long, J. A.: Characteristic Effects on Growth, Oestrus and Ovulation, Induced by the Intraperitoneal Administration of Fresh Hypophyseal Substance, Proc. Nat. Acad. Sc. **8**: 38, 1922.
9. Zondek, B., and Aschheim, S.: Hormones of Anterior Lobe of Pituitary: Purposeful Test for Its Detection, Klin. Wchnschr. **6**: 248 (Feb. 5) 1927.
10. Erdheim, J., and Stumme, E.: Ueber die Schwangerschaftsveränderung der Hypophyse, Beitr. z. path. Anat. u. z. allg. Path. **46**: 132, 1909.

completed the patient passed through a perfectly normal menstruation. The patient was not pregnant.

CASE 252.—A. H., a woman, aged 34, white, married, complained of nausea, vomiting and high blood pressure throughout the seven months of pregnancy. In the hospital, diagnosis of a dead fetus was made and cesarean section was done. A macerated fetus, dead about one week, was delivered. Blood was taken at the time of operation. Mouse 252 was injected with 5 cc. of the patient's blood serum. The weight of the mouse was 2,178 mg. The weight of the uterus was 109 mg. The ratio was 199. The ovaries of the mouse were markedly enlarged. The test was positive for pregnancy because of the test animal's enlarged ovaries.

TABLE 4.—*Results of Preliminary Tests on Ovarian and Placental Extracts*

Mouse	Preparation	Amount, Cc.	Number of Days	Method	Mouse Weight, Mg.	Uterus Weight, Mg.	Ratio	Ovaries
1 E	Extract placenta	1.0	10	Mouth	10,487	55	190	0*
2 E	Extract placenta	1.0	10	Mouth	8,657	43	201	0
3 E	Extract placenta	2.5	5	Subcutaneous	10,812	44	245	0
4 E	Extract placenta	2.5	5	Subcutaneous	12,270	46	266	0
5 E	Extract placenta	0.9	5	Subcutaneous	17,156	68	252	0
6 E	Extract placenta	1.0	5	Subcutaneous	15,977	95	168	0
7 E	Extract placenta	1.0	5	Subcutaneous	16,000	46	349	0
8 E	Extract placenta	0.9	5	Subcutaneous	11,635	28	415	0
9 E	Extract placenta	2.5	4	Subcutaneous	11,950	50	239	0
1 L	Corpus luteum	3.2	5	Subcutaneous	18,000	36	500	0
2 L	Corpus luteum	1.4	3	Subcutaneous	8,605	11	782	0
3 L	Corpus luteum	1.4	3	Subcutaneous	10,127	11	920	0
4 L	Corpus luteum	2.5	5	Subcutaneous	10,810	10	1,081	0
5 L	Corpus luteum	2.25	5	Subcutaneous	7,400	9	822	0
6 L	Corpus luteum	0.9	2	Subcutaneous	12,620	12	1,051	0
7 L	Corpus luteum	2.7	5	Subcutaneous	12,180	11	1,107	0
8 O	Whole ovary	3.6	5	Subcutaneous	12,007	9	1,334	0
9 OR	Ovarian residue	2.0	4	Subcutaneous	11,729	9	1,303	0

* 0 = small.

APPLICATION OF TEST TO COMMERCIAL LIQUID EXTRACTS OF OVARY, PLACENTA AND PITUITARY

Ovary and Placenta.—As early as 1912, Fellner[11] noticed the effect of potent ovarian extracts on the uterus of the mouse, but apparently little use of this finding has been made on commercial extracts, which have too often proved to be devoid of active principle. Therefore, it is suggested here that the mouse test as outlined for pregnancy be applied to these commercial extracts by simply substituting the extract instead of the patient's serum. Immature female mice should be used, and the enlargement of the animal's uterus is the criterion for the presence of active hormone. This test, of course, is only a qualitative test and cannot displace the vaginal smear method elaborated by Stockard and Papanicolaou[12] and now used by some manufacturers for quantitative standardization. But since this qualitative test is so easily carried out, there is no longer need to use impotent products. The results of preliminary tests on ovarian and placental extracts are listed in table 4, and it is significant that only one out of seven different preparations contained active hormone. These results confirm the work of Geist and Harris,[13] who reported that many commercial preparations failed to prevent the atrophy of the uterus in castrated rabbits.

One-tenth cubic centimeter of commercial liquid extract of placenta was given by mouth to mouse 1 E daily for ten days. On the fifth day the vaginal orifice was established. The mouse was 26 days old and weighed 10,487 mg. The weight of the uterus was 55 mg. The ratio was 190. The greatly enlarged uterus of this immature mouse proves that this commercial preparation was potent.

Pituitary.—If the injection into mice of the anterior lobe of the pituitary causes ovarian enlargement as indicated by the work of Evans and Long,[8] Smith and Engle,[7] Zondek and Aschheim[9] and others, then the hormone test as outlined for pregnancy could be used as a qualitative test for the potency of commercial preparations of the anterior lobe of the pituitary. Preliminary tests show that the subcutaneous injection of three different commercial liquid extracts into mature white female mice failed to cause any gross enlargement of the test animal's ovaries. This finding indicates that the commercial extracts tested were devoid of active hormone.

If the mare or the cow should prove to have large quantities of ovarian hormone and of the hormone of the anterior lobe of the pituitary in the circulation during the gravid state, they might constitute a valuable source of commercial preparations of both hormones.

CONCLUSIONS

1. This test for pregnancy is based on the effect of the injection of gravid female blood serum on the uterus and the ovaries of white female mice.

2. The term hormone test is proposed because the test is for the probable presence of hormones.

3. The hormone test showed a high degree of accuracy in a total of 142 cases, which indicates that the procedure is of practical value.

4. The test is reliable early and late in pregnancy.

5. The hormone test can be used for the qualitative determination of the potency of commercial liquid extracts of ovary, placenta, and probably the anterior lobe of the pituitary.

11. Fellner, O. O. (footnote 6): Experimentell erzeugte Wachstumsaeränderungen am weiblichen Genitale der Kaninchen, Centralbl. f. allg. Pathol. u. path. Anat. **23**: 673, 1912.

12. Stockard, C. R., and Papanicolaou, G. N.: The Existence of a Typical Oestrous Cycle in the Guinea-Pig with a Study of Its Histological and Physiological Changes, Am. J. Anat. **22**: 225 (Sept.) 1917.

13. Geist, S. H., and Harris, W.: Experimental Investigation of the Value of the Various Commercial Ovarian Extracts, Endocrinology **7**: 41 (Jan.) 1923.

Polyposis.—The term polyposis of the colon has been interpreted by different writers at various times to mean a single polyp, scattered polypi, or an actual polyposis in which we find the entire large bowel, including the rectum, the seat of thousands of sessile adenomatous tumors. The finding of a single polyp is certainly not a rare occurrence; neither are multiple or scattered single polyps in the same bowel uncommon. Areas of polyposis which are the result of ulcers, strictures, carcinoma or other mucus membrane irritation are frequently encountered, but we still have remaining that type of polyposis which occurs most often in young people and in which the normal mucosa is entirely replaced by countless small tumors of approximately the same size. This latter form has been very correctly named by Erdmann and Morris "adolescent, congenital, disseminated polyposis," in contradistinction to all other forms.—Hullsiek, H. E.: Multiple Polyposis of the Colon, *Surg. Gynec. Obst.*, September, 1928.

CLINICAL EXPERIENCE WITH IRRADIATED ERGOSTEROL*

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In 1924 it was shown independently by Hess [1] and by Steenbock [2] that various foods, such as oils, milk and cereals can be endowed with specific antirachitic properties merely by subjecting them to ultraviolet radiations. The year following, these investigators [3] found that the substance which undergoes this specific change is a sterol, seemingly cholesterol, which has long been known to be a constituent of every cell in the animal body. These studies and their obvious connotations definitely identified actinotherapy with photochemistry. The subject was elucidated still further about a year ago by the investigations of Windaus and Hess [4] and of Rosenheim and Webster [5] who, by means of chemical analyses and spectral absorption tests, determined that it is ergosterol, a sterol closely allied to cholesterol, which is activated by the ultraviolet rays in this remarkable way. Ergosterol was one of the large number of sterols known to chemists for many years. In 1890 and 1908 Tanret, a French chemist, distinguished it from cholesterol and showed that it could be extracted from fungi, yeast and mushrooms, more particularly from a fungus which develops on grain—ergot. It had attracted little attention, however, as it was thought not to be a component of the animal cell nor to have any biologic significance.

Activated ergosterol has been shown to be a highly potent antirachitic both for animals and for man. It is perhaps two thousand times as potent as activated cholesterol, and a hundred thousand times as potent as cod liver oil, and is able to prevent or cure rickets in rats in a daily dose of $\frac{1}{20,000}$ mg. or less, according to the purity of the preparation. Notwithstanding the attainment of this high degree of potency, it is probable that only a small amount of the ergosterol is rendered active by irradiation, probably not more than from 1 to 2 per cent. The effect brought about by the ultraviolet rays can be studied biologically on rats and other animals, but more delicately in connection with the spectral absorption changes which the sterol undergoes. This method was resorted to some years ago in connection with cholesterol [6] and has been used most successfully and intensively by Heilbron [7] and his colleagues. They found that in the course of irradiation ergosterol is continually being activated and deactivated, that there is a series of phases taking place, absorption appearing at one point and disappearing at another, finally to disappear entirely following prolonged irradiation. These observations show the formation and destruction of a series of products and indicate that the specific factor itself is an unstable chemical body. It is probable that as yet we have not obtained the specific antirachitic substance in a pure state and it is also probable that other sterols will be discovered which can be activated similarly to a greater or less degree. Bills [8] believes that this is true of cholesterol. It is of interest to note that although there are lacunae in our knowledge concerning irradiated ergosterol, we have a great amount of information about this specific factor or vitamin, which was one of the last to be discovered.

About a year ago, one of us [9] published a report of the remarkable antirachitic activity of irradiated ergosterol. This study has been confirmed by other investigators, by Holtz [10] and by György [11] in tests on rats and by Hottinger [12] on puppies. The fact that this activated sterol exerts such a marked specific action on animals justified, from the outset, the conclusion that it would have a similar action on infants, for every antirachitic substance that has been effective on animals has been potent approximately in the same degree on infants.

The observations in regard to the antirachitic value of irradiated ergosterol on infants have been confirmed by many; indeed, a considerable literature on this subject has developed within the year. It is unnecessary to review these studies in detail. They may be summed up by the statement that in all cases this new therapeutic agent has been found to be reliable in the prevention as well as in the cure of rickets, that its action has been remarkably rapid, all signs of rickets disappearing more quickly than has been accomplished heretofore with cod liver oil, its concentrates or with direct irradiation. The beading of the ribs became distinctly less marked, calcification of the epiphyses was soon evident by the roentgen rays, and craniotabes quickly disappeared. Many of the observers have emphasized the rapidity with which the cranial bones regained their normal rigidity, an effect noticeable frequently within one or two weeks. Furthermore, in cases in which the inorganic phosphorus of the blood was estimated, it was found to have acquired its normal level, and, in turn, when the calcium was low, it likewise had been raised to the normal. In other words, tetany as well as rickets responded to this treatment. Hottinger reported favorable results in a case of adult tetany as well as in three instances of osteomalacia, and Starlinger [13] was able to cure a case of long-standing osteomalacia which had resisted other measures.

For the past year we have been employing several preparations of irradiated ergosterol for the prevention and cure of rickets and tetany and can fully confirm the laudatory reports that have been published during the year.[14] Some of the ergosterol we have irradiated ourselves and dissolved in cottonseed oil; some has been in the form of commercial preparations, not yet marketed in this country. The usual daily dose for cure has been the equivalent of from 2.5 to 5 mg. of irradiated ergo-

* Read before the annual meeting of the American Pediatric Society, May 1, 1928.

1. Hess, A. F.: Experiments on the Action of Light in Relation to Rickets, Am. J. Dis. Child. **28**: 517 (Oct.) 1924.
2. Steenbock, Harry; and Nelson, M. T.: Science **60**: 224, 1924; J. Biol. Chem. **62**: 209 (Nov.) 1924.
3. Hess, A. F., and Weinstock, Mildred: J. Biol. Chem. **63**: xxv (March) 1925. Steenbock, Harry; Black, A.; Nelson, E. M.; Nelson, M. T., and Hoppert, C. A.: J. Biol. Chem. **63**: xxv, 1925.
4. Windaus, A., and Hess, A. F.: Gesellsch. d. Wissensch. z. Göttingen, Math.-Phys. Klasse, 1926, p. 195; Proc. Soc. Exper. Biol. & Med. **24**: 461 (Feb.) 1927.
5. Rosenheim, O., and Webster, T. A.: J. Soc. Chem. Indust. **45**: 932, 1926.
6. Hess, A. F., and Weinstock, Mildred: J. Biol. Chem. **64**: 193 (May) 1925.
7. Heilbron, I. M.; Kamm, E. D., and Morton, R. A.: Biochem. J. **21**: 78, 1927.
8. Bills, C. E.; Honeywell, E. M., and MacNair, W. A.: J. Biol. Chem. **76**: 251 (Jan.) 1928.
9. Hess, A. F.: Antirachitic Activity of Irradiated Cholesterol, Ergosterol and Allied Substances, J. A. M. A. **89**: 337 (July 30) 1927.
10. Holtz, F.: Klin. Wchnschr. **6**: 535 (March 19) 1927; Deutsche med. Wchnschr. **53**: 706 (April 22) 1927.
11. György, P.: Klin. Wchnschr. **6**: 580 (March 26) 1927.
12. Hottinger, A.: Ztschr. f. Kinderh. **44**: 61, 1927.
13. Starlinger, W.: Deutsche med. Wchnschr. **53**: 1553, 1928.
14. Falkenheim, C.: Deutsche med. Wchnschr. **52**: 1550 (Sept. 9) 1927. Beumer, H., and Falkenheim, C.: Klin. Wchnschr. **6**: 798 (April 23) 1927. Lasch, W., and Behrens, A.: Deutsche med. Wchnschr. **53**: 706 (Sept. 9) 1927; **53**: 1552, 1928. Vollmer, H.: Ztschr. f. Kinderh. **45**: 265, 1928. Prinke, G.: Klin. Wchnschr. **6**: 1644 (Aug. 27) 1927. Karelitz, S.: Proc. Soc. Exper. Biol. & Med. **25**: 576, 1928.

sterol. As shown in table 1, one of the most striking signs of improvement has been the precipitous calcification of the cranial bones. We may note most marked craniotabes (+ + +) reduced to moderate (+ ±) and slight (±) softening in periods of nine and twenty-four days, respectively. In one of these instances, as in several others, this result was accomplished after three teaspoonfuls daily of cod liver oil, given for five weeks, had been ineffective. The exceptional rapidity of absorption of lime salts in these bones may be ascribed to the fact that the lesions are generally partly due to simple osteoporosis rather than to rickets. The healing of the epiphyses, although not accomplished quite so rapidly, is often distinctly evident after irradiated ergosterol has been given less than a fortnight, and well advanced after three weeks. The accompanying roentgenograms show not only marked calcification but also hypercalcification of the epiphyses (fig. 1). Beading failed in rickets; that, even in many cases in which cod liver oil had not brought about healing, irradiated ergosterol initiated a rapid cure. The improvement, tabulated according to various signs—craniotabes, beading, calcification of the epiphyses—is shown in table 1. It will be noted that when the calcium was low, as in latent tetany, it responded rapidly to treatment and rose to the normal level, and that when uncomplicated rickets existed the inorganic phosphorus rose. This was the rule. It is, however, with the exceptions to or rather with the variations from this rule that we are particularly interested. In two instances, as is shown in table 1, the phosphorus reached abnormally high levels. In the one, a triplet found by roentgen rays to have osteoporosis as well as rickets, the percentage of inorganic phosphorus rose from 6.3 to 9.6 mg. per hundred cubic centimeters after 2.5 mg. of irradiated ergosterol had been given for a period of

TABLE 1.—*Effect of Irradiated Ergosterol on Infantile Rickets and Tetany*

Case	Age, Mos.	Weight, Lbs.	Antirachitic Treatment	Date	Craniotabes	Beading	Blood: Calcium, Mg. per 100 Cc.	Blood: Phosphorus (Inorganic) Mg. per 100 Cc.	Roentgenograms	Comment
M. G.	5	12¼	Ergosterol, 2.5 mg., 3/1-3/23	3/ 1	+ + +	±	7.9	6.7	.....	Latent tetany
				3/15	+ ±	±	10.9	6.6	Healing rickets	
				3/23	±	±	....	...	Marked healing	
G. Y.	2	6½	Cod liver oil, 15 Gm., 1/16-2/29	12/ 5	0	0	....	...	.....	Triplet; latent tetany; failure of cod liver oil
	4½	9¼	Ergosterol, 4.0 mg., 2/21-3/14	2/21	+ +	+ +	8.3	6.2	Mild rickets; osteoporosis	
	5½	11		3/14	+	+	11.4	5.4	Healing	
B. Y.	2	5¾	Cod liver oil, 15 Gm., 1/16-2/29	12/ 5	0	±	....	...	.....	Triplet; failure of cod liver oil; rickets in spite of normal calcium and phosphorus
	4½	8¾	Ergosterol, 2.5 mg., 2/20-3/15	2/21	+ + +	+ +	10.1	6.3	Very slight rickets; osteoporosis	
	5½	11		3/15	±	+ +	11.4	9.6	Slight healing	Diminished phosporus in urine
I. V.	7	11	Ergosterol, 6.0 mg., 4/4-4/13	4/ 4	+ + +	+ ±	6.4	4.7	Marked rickets; osteoporosis	Latent tetany; improved appetite; gain in weight; improvement of musculature
	7½	11¾		4/13	+ ±	+ ±	10.1	4.7		
C. H.	9	12½	Vitaglass, 2/13-3/15	1/16	+ + +	+	10.0	4.4	Definite rickets	Twin; improvement of craniotabes with progressive rickets
			Ergosterol, 2.5 mg., 3/16-4/1	3/16	±	+ +	9.9	4.2	Rickets worse	
	11	15		3/29	±	+ +	11.2	6.2	Healing	
M. D.	4½	9¼	Cod liver oil, 15 Gm., 1/27-2/16	10/30	0	0	....	...	.....	Twin; latent tetany; failure of cod liver oil
			Ergosterol, 4.0 mg. 2/16-3/14	2/16	+ +	+ ±	7.8	3.8	Mild rickets; osteoporosis	Diminished phosphorus in urine
	5½	10¾		3/14	±	+ ±	11.6	10.4	Healing	Sweating disappeared
F. H.	2	6	Ergosterol, 0.5 mg., 5/4-6/19	5/ 3	+ +	+	....	...	Mild rickets; osteoporosis	Premature infant; hypercalcemia with progressive rickets; increase of irradiated ergosterol brought about healing within a week
	3	8½	Ergosterol, 2.5 mg., 6/19-6/25	6/19	+ + ±	+ ±	13.6	4.2	Rickets worse	
	4½	9¾		6/25	+ to + ±	+ ±	12.3	6.0	Healing	

of the ribs, the rachitic rosary, disappears under this form of treatment; but, as emphasized at other times, beading—although a most reliable sign in the diagnosis of rickets—is confusing as a gage of healing. In addition to these symptoms, which have been referred to by others, it was noticeable to the nurses as well as to the physicians that in some instances the appetite was markedly improved and that the excessive sweating was lessened; we have given this drug with some success to allay sweating of nonrachitic origin.

In estimating the activity of antirachitic agents we are exceptionally fortunate in being able to make use of chemical criteria—the percentage of calcium and of inorganic phosphorus in the blood; in investigations of the other vitamins, only general biologic criteria are available. We have made continued use of this opportunity and have followed the chemical variations in the blood for periods of months, not only in cases of rickets in which irradiated ergosterol was being given but in a still greater number of normal infants to whom it was administered for prophylactic purposes. Our experience can be summarized by the statement that this drug never twenty-four days; in the other, a twin with latent tetany, who likewise had osteoporosis as well as rickets and who also had failed to be benefited by cod liver oil, the inorganic phosphorus increased in four weeks' time from 3.8 to 10.4 mg. per hundred cubic centimeters; in other words, to double the norm. We have encountered three instances of this kind, but in none has any clinical disturbance been evident.

The percentage of calcium responds fully as promptly to this form of medication as does the inorganic phosphorus. Instances may be noted in the table of calcium rising from 8.3 to 11.4 and from 7.8 to 11.6 mg. per hundred cubic centimeters within a month's time, and from 7.9 to 10.9 mg. after an interval of two weeks. But in this respect, as in relation to phosphorus, the mobilization may be excessive. This phenomenon has been observed in several infants. The most marked instance occurred in a normal infant, aged 8 months, who was receiving 5 mg. daily of irradiated ergosterol. This case will be discussed in detail in another connection. A second is noted in the table, in which the calcium rose to 13.6 mg. after less than 1 mg. of irradiated

ergosterol has been given for about six weeks.[15] In two instances the high level followed considerably larger doses of activated ergosterol and therefore need not be considered; the calcium rose to 15.2 and to 13.8 mg. per hundred cubic centimeters. In other words, in some cases of rickets and mild tetany irradiated ergosterol, as prescribed at the present time, may bring about either an excessive increase of calcium or of inorganic phosphorus, or of both—a hypermineralization. Local hypermineralization was also evident as may be noted in figure 1, which shows excessive healing—eburnation—in rickets. The other roentgenogram is of the epiphyses of the normal infant which received 5 mg. daily of irradiated ergosterol for about eight weeks and developed hypercalcification as well as hypercalcemia (fig. 2). A similar phenomenon in regard to epiphyses was noted by one of us some years ago in roentgenograms of numerous infants who had been born and brought up in the Panama Canal Zone.

As is shown in table 2, the calcium of the blood not infrequently reached abnormally high percentages in normal infants who had received amounts of irradiated ergosterol which are now recommended. In only a few instances, which will be referred to later, was this excess associated with any unfavorable clinical manifestations. In the great majority the high calcium was noted in routine blood examinations carried out in the course of a study of this new form of medication. In animals, young rats, we have encountered still higher percentages of calcium, 16 mg. or more per hundred cubic centimeters, but this came about only when extreme amounts had been given. The distinction between the action of the physiologic and the toxic dose is one which must be emphasized. It should be borne in mind in connection with the recent report of Kreitmair and Moll,[16] who showed that irradiated ergosterol given to rats in huge amounts leads to calcification of various tissues. As the authors pointed out, they gave doses which were at least ten thousand times greater than the minimal curative dose.

In two cases untoward symptoms were associated with high percentages of calcium. The course of one of these, of the calcium as well as of the phosphorus, of the weight and the temperature, are reproduced in figure 3. After this infant had received about 5 mg. of irradiated ergosterol for a period of a little over three weeks, it developed a moderate fever and began to lose weight; in the course of twelve days it lost 2 pounds (0.9 Kg.). There was some vomiting, marked drowsiness and a peculiar mental condition. The calcium rose to 16.2 mg. per hundred cubic centimeters and persisted at a high level, although the phosphorus percentage remained about normal. The other instance which manifested abnormal symptoms was similar, in that there was loss of weight accompanied by fever and peculiar drowsiness, a clinical picture reminding one of dehydration. It is difficult to interpret this clinical phenomenon. At first we were inclined to associate the peculiar symptoms with the complication of high calcium and an intercurrent infection. However, in view of the fact that Falkenheim[14] has recommended irradiated ergosterol in febrile conditions, especially in bronchopneumonia, and that Gehrt[17] recently reported favorable results in similar cases, it would seem that the fever cannot be the underlying cause. Possibly these children were peculiarly sensitive to the action of irradiated ergosterol. In fact, one of them began to develop similar symptoms for a second time, accompanied by a rise of calcium to 14.7 mg. per hundred cubic centimeters, after the irradiated ergosterol, having been discontinued for a month, had been given again for a period of about three weeks. In spite of the hypercalcemia, the steady gain in weight continued until the twenty-fifth day, when the infant began to lose and vomited once. The calcium in the serum was found to be 17.6 mg. per hundred cubic centimeters. The blood did not show evidence of abnormal concentration, but the coagulation time was shortened. The electric reactions were found to be sluggish. A trace of albumin and numerous finely and coarsely granular casts appeared in the urine. To a certain extent their reaction resembled that which was observed when first we made use of ultraviolet rays in 1918 and employed too great intensities. Whatever may be the interpretation of these symptoms, there can be no doubt in regard to the hypercalcemia that resulted from this treatment.

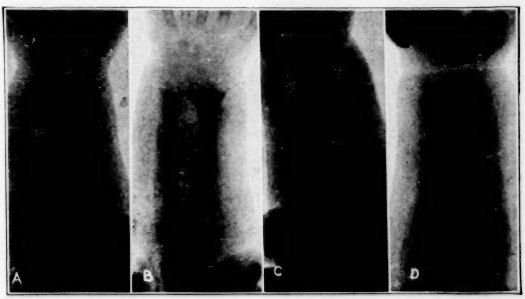

Fig. 1.—Effect of irradiated ergosterol (4 mg. daily) on calcification of epiphyses in rickets and osteoporosis. Note final hypercalcification: *A*, Feb. 27, 1928; *B*, March 14; *C*, March 27; *D*, April 26.

Apart from the clinical application, the most interesting question raised by irradiated ergosterol is in regard to the mechanism by which it raises the calcium and phosphorus, more particularly the former, to normal or even supernormal levels. Naturally our attention first turned to the parathyroid glands in connection with the increase of calcium. As is well known, the extract prepared by Collip from parathyroids brings about a marked increase of calcium in man and in animals. When this preparation is discontinued, the calcium rapidly falls to normal. One of the most remarkable features in connection with the abnormally high blood calcium in our cases was its persistence for a considerable period after the irradiated ergosterol had been discontinued. We noted this delayed ebb in three instances: In one (fig. 3) the calcium was 16.2 twenty-

15. In spite of the abnormally high calcium, the rachitic process progressed, as judged by the roentgenogram and the clinical signs. It is also of interest in this case that the product of percentage of calcium times that of phosphorus is 57, in view of the fact that many believe that a product of 40 or over insures healing. An instance of the reverse of this phenomenon was also noted in connection with case 3 of this series. Here a product of Ca × P = 63 was associated with active rickets without the least evidence of calcification. This baby was very poorly nourished, a triplet 4½ months of age, weighing 8¾ pounds (3.9 Kg.).

16. Kreitmair, H., and Moll, T.: München. med. Wchnschr. **75**: 637, 1928.

17. Gehrt, J.: Deutsche med. Wchnschr. **54**: 956, 1928.

four days, and in another 14.5 mg. per hundred cubic centimeters thirty days after the drug had been discontinued; in still another it was 15.2 mg. per hundred cubic centimeters seventeen days later. We have had similar experiences in experiments on animals. It seemed as if the irradiated ergosterol either was stored or stimulated the parathyroids or other glands which regulate calcium metabolism. Preliminary studies lead us to believe that the second interpretation probably is the correct one—that irradiated ergosterol acts as a stimulus for the parathyroid glands. For example, the following experiment offers convincing evidence.

In a monkey in which latent tetany was induced and had been maintained for several months by means of a diet low in calcium, large amounts of irradiated ergosterol given by mouth promptly raised the serum calcium to a normal level. After the parathyroid glands had been removed, the calcium fell once more and could not be raised by repeated doses of irradiated ergosterol.

Fig. 2.—Hypercalcification of epiphyses of normal infant. (See figure 3.)

The controlling mechanism of the excessive level of inorganic phosphorus is certainly quite different from that of the calcium. In some of the cases, particularly one, the paths took divergent courses, the phosphorus falling steadily while the calcium rose. In two instances, referred to in table 1, the excretion of phosphorus in the urine during the period of high blood phosphorus (10.4 and 9.6 mg. per hundred cubic centimeters) was only about one half of that excreted after the irradiated ergosterol had been discontinued for a month.

DOSAGE

The problem of dosage, always unsatisfactory in connection with antirachitic agents, has been entirely reversed by the introduction of irradiated ergosterol. It could not be otherwise, in view of the fact that the new specific is many thousand times as potent as a standard grade of cod liver oil; 1 ounce of average activated ergosterol is the equivalent of from 2 to 6 tons of cod liver oil.[18] Evidently there is no longer a question of being able to give sufficient of the antirachitic factor. In the past in respect to cod liver oil, it has always been difficult to administer an amount that would assure protection. Three teaspoonfuls daily, the customary dose, often proves inadequate in a rapidly growing infant. This frequently is the case in the nursing, in contradistinction to the bottle-fed baby, owing to the fact that woman's milk contains so small an amount of calcium and phosphorus. In regard to premature infants, the experience is general that it is rarely possible to give enough cod liver oil to insure protection; even 5 or 6 teaspoonfuls a day may fail to have the desired effect. In order to fill this need, to augment the dose of the specific factor, one of us recently suggested the use of irradiated brain, of irradiated yeast or of cod liver oil fortified with 1 per cent of irradiated cholesterol.

The dosage of ultraviolet irradiation, the other specific for rickets, also is not on a satisfactory basis. In this connection the problem is not the giving of an adequate intensity but rather the danger of an overdose or of not knowing just how much to prescribe. Undoubtedly, the tendency is to overirradiate, a procedure which may lead, according to our experience, to nervousness, susceptibility to infection or to anemia. Fortunately, the infant generally is protected from too high intensities by developing pigmentation of the skin, or reacts with severe erythema which causes the dosage to be diminished.[19]

The same lack of definiteness in regard to dosage applies to the medicinal use of irradiated foods. We have not even an approximate estimate of the content of ergosterol in various foods. In fact, we pay no attention to this factor and prescribe this type of food according to the old standard of caloric requirement of the infant rather than the antirachitic needs. If in the future more than one irradiated food is given a child, as may well come to pass, for example irradiated milk and irradiated cereal, we shall be augmenting the intake of activated ergosterol without the least thought or concern as to quantity. It is quite possible that in giving irradiated foods there is no danger whatever of overstepping the bounds of safety, but this aspect certainly must be considered and investigated. There are reports in the pediatric literature of giving infants at one and the same period irradiated milk and excessively high intensities of direct irradiation. It is evident that quite apart from the newer problems introduced by the use of activated ergosterol the dosage of specific antirachitic therapy is in a highly confused state.

Although not yet available commercially, irradiated ergosterol, under various trade names, has been tested in many clinics both in this country and abroad. It is difficult to appraise the strength of the irradiated ergosterol contained in these preparations, owing to the fact that ergosterol itself is by no means a uniform product. This is evident from the gross appearance of the extracts; some are brownish and colloidal in nature, whereas others are white and crystalline. But even lacking exact information on this point, it is certain that this new therapeutic agent frequently is prescribed in doses two or more hundred times the equivalent of cod liver oil. It may be added that biologic tests car-

18. About 7 mg. of good cod liver oil is required to protect a young rat from rickets, whereas only from 1/10,000 to 1/50,000 mg. of irradiated ergosterol is needed. It is evident, therefore, that the latter may readily be 100,000 times as potent as the oil. The activated sterol is dispensed in a dilute solution, frequently 1 per cent or less.

19. It is quite evident that we have no means of knowing how much of the antirachitic factor we are providing by our irradiation. The ultraviolet rays are supposed to exert their action by means of activating ergosterol in the skin. Such being the case, the dose must vary considerably in direct ratio to the extent of the surface irradiated—for example, according to whether the entire surface is irradiated or merely a part of the body. Furthermore, it has never been determined whether the skin of individuals varies in its content of ergosterol, or, again, whether this factor is equally distributed throughout the surface of the body.

ried out recently showed that it is readily absorbed.[20] The question therefore is pertinent as to whether irradiated ergosterol is not being administered in unnecessarily high dosage.

Although it is premature to make a categorical statement in regard to the dosage of irradiated ergosterol, the matter may be formulated tentatively as follows: For a baby growing at the normal rate, a daily dose of about 0.5 mg. as a prophylactic and 1 mg. for the average case of rickets. These amounts are equivalent to about 7 and 14 teaspoonfuls daily of high grade cod liver oil and should be sufficient.[21] One may begin treatment at the age of 1 month. For the present it seems advisable not to prescribe it for the new-born infants, or to do so guardedly, although Vogt [22] recently has reported favorable results in new-born infants that received from 2 to 5 drops of a 1 per cent solution (about 1 to 2.5 mg.).

From a therapeutic standpoint, premature and exceptionally rapid-growing infants must be considered quite apart and the dosage gaged according to an entirely different scale both in regard to irradiated ergosterol and to all other antirachitic agents. They may be found to require as much as from 2 to 3 mg. daily, at any rate at the beginning of the period of treatment, an amount that probably also will be found necessary for cases of late rickets, which are notably refractory, and for osteomalacia. We have no experience with the treatment of the pregnant or nursing woman, for whom direct irradiation appears to be beneficial, but would begin with about 1 mg. daily. It would seem of advantage, for the present, to control the dosage by occasional estimations of both the calcium and the inorganic phosphorus content of the blood, in view of the fact that large amounts of irradiated ergosterol may cause these constituents to rise to abnormally high levels.

No doubt these directions will have to be modified in the light of clinical experience; it is preferable that the dose should have to be increased than decreased. As indicated, there is a peculiar tendency for irradiated ergosterol to continue to exert its effect for a considerable period after it has been discontinued, so that possibly it may be of advantage to give it interruptedly or perhaps only a few times a week. Such details will have to be worked out carefully in the clinic and cannot be solved by observations in the laboratory. The difficulty which we are experiencing in setting the therapeutic dosage for activated ergosterol is merely one which is associated with the introduction of any new preparation. Irradiated drugs and foods constitute the newest chapter in therapeutics and pharmacology, and without doubt will be the object of thorough investigation and study in the near future.

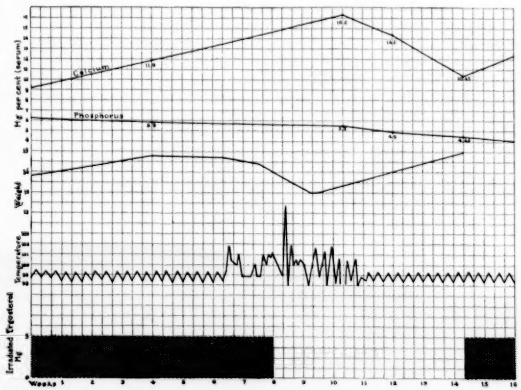

Fig. 3.—Hypercalcemia in normal infant. Note maintenance of high level of calcium for several weeks after irradiated ergosterol was discontinued.

CONCLUSIONS

Irradiated ergosterol is by far the most potent of the antirachitic agents. It is an absolute specific. Cod liver oil in the amount in which it can be given is a specific of limited dependability—only moderately effective for the average infant, uncertain in action for the rapidly growing infant, and ineffective for the premature. Irradiated ergosterol is quite as valuable in tetany as in rickets, and in both disorders is remarkable for the rapidity as well as for the reliability of its action.

TABLE 2.—*Effect of Irradiated Ergosterol on the Calcium and Phosphorus Content of the Blood in Normal Infants* *

Case	Sex†	Age, Mos.	Weight, Lbs.	Ergosterol: Number of Days Given	Ergosterol: Daily Dose	Blood: Calcium, Mg. per 100 Cc.	Blood: Phosphorus (Inorganic) Mg. per 100 Cc.
L. R.	♂	9½	18¾	..	...	10.9	5.6
				61	2.5	12.44	4.53
				77	2.5	13.8	6.85
J. A.	♂	6½	15½	77	0.5	15.3	6.05
Y. G.	♀	9	13	..	...	10.45	4.45
				7	5.0	12.2	4.0
R. S.	♂	9	19	..	...	11.0	6.7
				12	5.0	12.62	4.7
				24	5.0	12.3	6.0
M. G.	♂	7	15	..	...	12.1	6.2
				11	5.0	13.1	4.06
				23	5.0	14.7	4.4
M. G.	♀	6½	11½	59	2.5	14.3	6.8
M. S.	♀	9	14	80	2.5	12.7	6.0
M. S.	♂	7	17	80	2.5	13.6	5.8
H. S.	♂	2	11	73	0.5	13.5	6.0
M. G.	♂	7	15	80	0.5	11.9	5.8
S. N.	♀	7	19	80	0.5	11.9	5.34
M. R.	♂	8	18	80	0.5	14.2	5.52

* These estimations were made in the spring and early summer. The percentages may have been heightened by the effect of solar irradiation.
† In this column, ♂ indicates male; ♀, female.

As yet, however, we have not sufficient clinical experience to define its proper dosage. Furthermore, the various preparations cannot be evaluated, as they have not yet been assayed on the basis of the number

20. In order to gain information in regard to this question, the urine and feces of an infant which had been receiving about 5 mg. daily of irradiated ergosterol were extracted with ether and fed to rats which were on a rachitogenic diet. Each rat received the extract of the excretions of one day. It was found that little or none of the irradiated ergosterol was present in the excreta.

21. As stated, the minimal protective or curative dose for a rat of a good cod liver oil is about 7 mg. daily. The average amount of oil given to an infant is about 3 teaspoonfuls or 15 Gm. daily, so that we now give the infant somewhat more than 2,000 "rat units." The protective or curative dose for the rat of an average preparation of irradiated ergosterol is about 0.0001 mg., so that 2,000 "rat units" of the sterol is equal to about 0.2 mg. If we prescribe, as suggested, from 0.5 to 1 mg. of irradiated ergosterol, we are giving the equivalent of about 7 to 14 teaspoonfuls daily of cod liver oil. A daily dose of 5 mg. represents about 70 teaspoonfuls of cod liver oil, an unnecessarily large amount.

22. Vogt, E.: München. med. Wchnschr. **75**: 721, 1928.

of "curative units (rat)" which they contain. The amounts now recommended and employed are unnecessarily high, as shown by the fact that they induce an excess of calcium and inorganic phosphorus in the blood in the normal as well as in the rachitic infant—hypermineralization. Too great emphasis has been laid on rapidity of action. It would seem advisable, before distributing unreservedly to the medical profession this potent concentrate, to make a more thorough clinical study of its dosage, as has been done in regard to other potent extracts. In view of its reliability, its high degree of activity and its ease of administration, irradiated ergosterol should prove a most valuable addition to our rapidly increasing fund of specific antirachitic agents.

16 West Eighty-Sixth Street.

TREATMENT OF ASPHYXIA IN THE NEW-BORN

PRELIMINARY REPORT OF THE PRACTICAL APPLICATION OF MODERN SCIENTIFIC METHODS

PALUEL J. FLAGG, M.D.
NEW YORK

Dr. Yandell Henderson's article "The Prevention and Treatment of Asphyxia in the New-Born" [1] is a friendly challenge to the physician to do better work in resuscitation than he has done in the past, or to yield to the supremacy of the fire department.

If the physician is to be more successful in meeting these opportunities to save life, he should bring into play his specialized knowledge of internal and external respiration and place himself in a position wherein this knowledge may be applied by becoming intimately acquainted with the anatomy of the upper airway, pharynx, hypopharynx and larynx as it appears with and without its reflexes. Familiarity with this field may readily be acquired in the anesthetized patient, in the cadaver, and, where the baby is concerned, in a new-born still-born child.

Dr. Henderson has covered the field of internal respiration with the thoroughness that is characteristic of all his work. It merely remains to devise means to employ to the best advantage the principles he has laid down regarding the life-saving value of a mixture of oxygen and carbon dioxide.

The only originality that I claim in the suggestions that follow is in the facilities I provide for the practical application of principles which every physician understands; namely, a simple practical means of inspecting and preparing the respiratory tract for the deliberate and exact introduction into it, at a point beyond the possibility of anatomic obstruction, of a measured volume of a known mixture of oxygen and carbon dioxide under the most sensitive conditions of manometer pressure at our disposal.

Several months ago, during the course of investigation and experimentation directed to improving and simplifying intratracheal anesthesia, I [2] was struck by what seemed to be the haphazard manner in which the airway of the new-born infant is cared for. I said as much to an obstetric friend, while on a case, and suggested that some sort of routine toilet of the respiratory tract should be practiced and taught; that this toilet should be carried out by direct vision of the mouth and throat, providing facilities for laryngoscopy and intubation, as required. The obstetrician, who is a leader in his specialty, replied that he would give a good deal if he could be shown how to expose a baby's larynx easily and without trauma.

Dr. Yandell Henderson's article then appeared, and to the problem of providing a suitable toilet for the airway of the new-born was added the necessity of devising a practical application of oxygen and carbon dioxide therapy.

There appears to be some difference of opinion among observers as to the amount of amniotic fluid and detritus normally present in the new-born infant's respiratory tract. Johnson maintains that normally the mouth, the pharynx, the trachea and the bronchi up to the second bifurcation are filled with amniotic fluid; the birth over the perineum, with the accompanying compression of the chest, squeezes most of this fluid out of the airway, through the mouth and the nose. It is a common experience to witness this discharge on the delivery of the head.

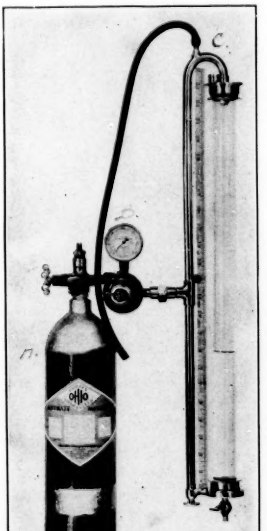

Fig. 1.—Oxygen-carbon dioxide tank, reducing valve and author's water manometer.

Breech presentation, version and cesarean section, in which compression of the chest has not taken place, leave the child's respiratory tract filled with fluid, much of which is inhaled, unless immediately expelled by artificial means. The lungs of infants dying of pneumonia directly after birth show, on section, bronchioles and alveoli filled with amniotic fluid and epithelial cells.

If the inhaled fluid is sterile, it appears to be absorbed in moderate quantities, without much subsequent disturbance.

Postmortem examination of children who have breathed or who have received mouth-to-mouth insufflation does not show fluid in the mouth or trachea at autopsy for the reason that this has been expelled by manipulation or blown into the finer air radicles by the operator, who, it is easily demonstrable, develops a positive pressure of from 50 to 75 mm. of mercury. Stethoscopic auscultation, under intratracheal insufflation, shows such a chest to be full of large, moist râles.

1. Henderson, Yandell: The Prevention and Treatment of Asphyxia in the New-Born, J. A. M. A. **90**: 583 (Feb. 25) 1928.

2. Flagg, P. J.: Intratracheal Inhalation: Preliminary Report of a Simplified Method of Intratracheal Anesthesia Developed Under the Auspices of Dr. Chevalier Jackson, Arch. Otolaryng. **5**: 394-399 (May) 1927; Intratracheal Inhalation Anesthesia: The Method of Election for Operations on the Head and Neck, ibid. **7**: 156-164 (Feb.) 1928.

No attempt at artificial respiration should ever be made until the mouth and the throat have been sucked free of fluid and until direct vision confirms the freedom of the airway.

As we look back over the road which has been traversed so far, it would seem that the problem of scientific artificial respiration, both in infants and in adults, revolves on the ease with which the larynx may be exposed and intubated.

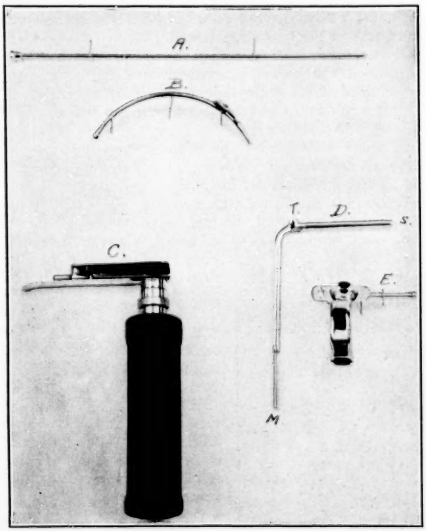

Fig. 2.—Instrument equipment: *A*, intratracheal suction tube; *B*, pharyngeal suction tube; *C*, baby illuminated laryngoscope; *D*, intratracheal insufflation tube; *E*, pharyngeal insufflation tube.

To ignore this fact and the necessity of this technic is to discount the truth that the glottis is a comparatively small elastic doorway through which all respired gases must of necessity pass, and that this doorway, in an infant whose reflexes are present, is nothing but a tiny slit about 1 to 2 mm. wide by 6 to 8 mm. long during inspiration, and more sensitive to reflex irritation than the cornea.

Fortunately, the sicker the baby, the more his reflexes are obtunded, the more relaxed becomes his respiratory door. The glottis, which will scarcely admit a 2 mm. tube with reflexes present, will accept with ease a 4 mm. tube in a state of asphyxia.

It is fair to assume that the state of the reflexes of a baby's larynx is a measure of the need of intratracheal intubation.

If a baby has a relaxed, open larynx, intubation should be done. The baby whose larynx offers resistance to intubation will do very well with artificial respiration by pharyngeal insufflation.

The chief resistance to the popularization of laryngoscopy appears to be the uncertain functioning of the usual delicate electrical equipment commonly used for laryngeal and bronchial work. Bronchoscopy requires small lights, large batteries and wiring. Laryngoscopy at the bedside, in the office, and in the ordinary emergency is well covered by ordinary pocket flashlight facilities, and, furthermore, permits of the use of the large lamp which seldom burns out.

The author's baby speculum was constructed on data furnished by the new-born still-born infant and in babies in whom postpartum deaths had occurred within a few hours. The weight of the babies observed varied between 6 and 10 pounds (2.7 and 4.5 Kg.). The distance from the upper gums to the glottis averaged 2½ inches (6.3 cm.).

EXPOSURE OF THE LARYNX

The soft, yielding tissue of the new-born child, the complete relaxation that accompanies the asphyxia of the new-born, the absence of teeth, the relatively large mouth and the short distance between the gums and the glottis provide ideal conditions for easy and nontraumatic exposure of the glottis.

As the reflexes reappear, a perfectly simple exposure becomes much more difficult. It may be reiterated that the conditions favoring intubation are in direct proportion to the need, and that laryngeal reflexes return with the activity of the respiratory center.

To expose the larynx, the baby is made to lie on a table, flat on its back; the head is moderately extended, the chin being kept in the midline. The lips are separated, and the mouth is opened with the thumb and the forefinger of the right hand. The illuminated speculum is made to pass gently over the tongue until the epiglottis is exposed. The hypopharynx is now in full view; and secretion present should be removed by suction. The lip of the laryngoscope is now made to pass just beneath the epiglottis. Care must be taken that the lip

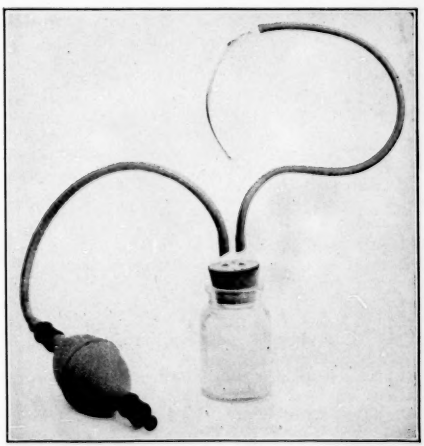

Fig. 3.—"Little Sucker" for hand suction.

of the laryngoscope does not pass over the larynx, as the distance between the epiglottis and the glottis is very short. In fact, it is sometimes practical to lift the tongue, exposing the epiglottis and the glottis simultaneously.

If, during the examination, no reflex activity of the glottis is observed, the intratracheal suction tube (fig. 2 *A*) should be passed between the cords and into the trachea to clear it of fluid. If there is still no

laryngeal reflex or only a very faint response, the intratracheal insufflation tube (fig. 2 *D*) should be inserted, and oxygen and carbon dioxide allowed to flow into the trachea. Partial or complete closure of the intratracheal tube orifice (fig. 2 *D T*) will distend the lungs to a degree to which the manometer (fig. 1 *C*) is set. When the laryngeal reflexes have returned and have become active, the tracheal tube should be removed, and the pharyngeal tube substituted.

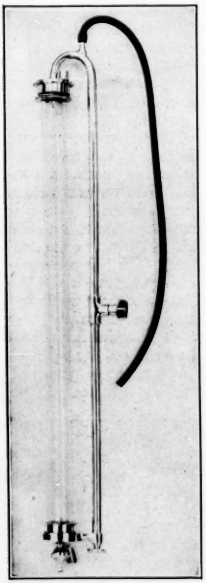

Fig. 4.—Author's water manometer for measuring pressure, volume and negative pressure.

Where oxygen and carbon dioxide are used for stimulation of depressed respiration, the pharynx should be exposed and cleared, as noted. The reflexes having been found active, intubation is dispensed with, and the pharyngeal tube is employed.

It is recommended that the respiration be interrupted by placing the thumb on the intratracheal tube every fifteen to twenty seconds. It is to be remembered that oxygen or carbon dioxide in the trachea and the bronchi, even though under little pressure, is absorbed by diffusion.

The principles of scientific artificial respiration may be carried out by extremely simple apparatus, improvised as follows:

A suitable laryngoscope for the exposure of the field (nothing is finer than the Jackson instrument; Dr. Jackson urged the treatment of the new-born which I now describe in his book on bronchoscopy some years ago).

A source of suction: water, electricity or steam, or the surgeon sucking one end of the catheter.

A metal tube with a smooth end, measuring not more than 4 mm., or three-sixteenths inch, in external diameter.

A Y or T tube, the vertical arm being extended by a length of glass or rubber submerged in water for a vertical depth of 8 inches.

A low pressure oxygen tank, or the surgeon's breath.

I have employed the foregoing equipment and have demonstrated its usefulness. The chief difficulty experienced was the need of too many assistants; the oxygen tank had to be hunted up and connected. It was often found to be only partly filled. The improvised manometer, which was a large stoppered tube, had to be held by some one. There was the danger of the baby aspirating water out of the manometer, when the gas pressure was stopped. The intermittent distention of the lung meant the shutting off of the tank or the withdrawal of the intratracheal tube.

Believing that no pains should be spared to perfect an assembly whose proper functioning might mean the life or the death of a patient, I determined to eliminate all electrically driven apparatus, rubber parts, and spring or mercury manometers which might fail through accident.

The equipment now assembled is a one-man outfit, and consists of the following:

1. Small tanks of oxygen and carbon dioxide which are easily portable and may be stored are employed (fig. 1 *A*).

2. The gas in these small tanks is under a high pressure, necessitating a reducing valve with a pressure gage, the pressure gage indicating the amount of gas remaining in the tank (fig. 1 *B*).

3. A specially constructed water manometer has been designed. This manometer has a range that is sufficient for adult artificial respiration (40 mm. of mercury).

This manometer is attached directly to the reducing valve. The pressure is set by filling the glass container with water through a funnel at the top (the funnel serves as an air vent) drawing off through a petcock at the bottom, until a suitable depth of water obtains. (Mercury is thirteen times as heavy as water. One inch of mercury equals 13 inches of water. Therefore, one inch of water equals, approximately, 2 mm. of mercury.)

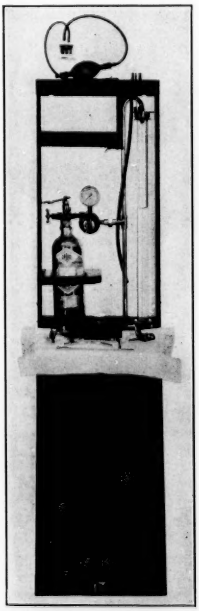

Fig. 5.—Author's resuscitation apparatus ready for use. The case opens to form a temporary stand, one side of which supports a collapsible tray for sterile instruments.

Aspiration from the manometer is prevented by the hollow metal tube, forming the support of the gage, into which aspirated fluid will collect. The manometer acts as a safety valve and, furthermore, indicates by the depression of the fluid in the inner tube the volume of gas delivered.

4. The suction outfit (fig. 3) develops a negative pressure of from 40 to 60 mm. of mercury and is provided with a specially curved suction tube (fig. 2 *B*) and an intratracheal suction tube (fig. 2 *A*).

5. The intratracheal tube (fig. 2 *D*) is a right angle, hollow tube, open at three points, *S T M*. *S* is connected directly with the manometer. The opening *T* is regulated by the thumb of the operator. When the tube is intubated (the tip, which is 1½ inches long, consisting of 4 mm. of tubing) gas flowing from the manometer to *S* escapes from *T*. When the thumb of the operator closes *T*, gas flows into the trachea until the thumb is removed, at a pressure set by the depth of water in the manometer. Removal of the thumb from *T* allows expiration, by virtue of the resilience of the chest wall. The air valve *T* acts as an additional safety valve against pressure. Gas can enter the lung only when this opening is closed by the thumb.

6. The pharyngeal insuffiation tube (fig. 2 *E*) is used for patients with active or returned reflexes who need the stimulating effect of carbon dioxide but do not require intubation. This tube is made of heavy metal, so that a soft, rounded edge may be had. Oxygen enters at *E*, and is delivered deep into the tube. A thumb control is provided, as in the intratracheal tube. In this case, however, the greater part of the oxygen and carbon dioxide flows into the pharynx, even though the thumb control is open, for the thumb opening is much smaller than the tube. The opening in the flange *B* is for a catheter (number 14 French), which should be passed into the stomach, when this tube is used, so that oxygen insuffiated, finding its way into the stomach, will not distend this organ and interfere with the respiratory efforts.

7. The laryngoscope (fig. 2 *C*), already referred to, is of the pocket flashlight type, with a large handle, lamp and detachable speculum, which may be boiled with the lamp in place, or sterilized in alcohol before use.

The assembly described is protected by a container. This container permits transportation and offers the facilities of a stand and table, when in use.

After use, all instruments are cleaned, sterilized, and put away in a sterile container, ready for immediate use.

A further report of the technic described will be submitted as experience with asphyxia neonatorum, gas poisoning and cases of drowning are observed.

Gotham Bank Building, Columbus Circle.

RECURRENT HERPES ZOSTER *

A. L. SKOOG, M.D.
KANSAS CITY, MO.

A discussion of recurrent herpes zoster is undertaken particularly to place on record an uncommon type, and possibly thereby to present further information concerning the etiology. A review of the literature reveals a paucity of similar cases. Our general knowledge of zoster is so well established that a complete review of the topic seems unnecessary.

Besides herpes zoster the names shingles, ignis sacer, zoster, zona, hemizona and acute posterior poliomyelitis are used. In a recent monograph, Levaditi [1] draws a clear distinction between simple herpes, illustrated by the febrile herpetic eruption occurring on the lips in malaria, pneumonia and other infections, and zona exemplified by the typical well known unilateral chest eruption, preceded by pain for a couple of days, then showing clusters of vesicles, confined closely to a dorsal dermatome, and self limited to about fifteen days. These names distinguish the two related disorders and seem to be attractive terminologies to adopt. Herpes simplex is found chiefly around the mouth and face, and the genital areas. Sutton [2] mentions the possible etiologic relationship of varicella and quotes many writers.

REPORT OF CASE

E. J. P., a man, aged 34, single, who came under my observation as a patient at Bell Memorial Hospital, University of Kansas School of Medicine, Sept. 30, 1926, complained chiefly of sharp shooting pains in the legs. The entering diagnosis was tabes dorsalis and morphinism. The family history was negative. He stated that he had had gonorrhea in 1917 and a chancre in 1918. His illness has prevented him from working since 1921. He was not properly treated after the appearance of the primary lesion. He noted a swelling of the right knee in about one year, his mother stating three years. There soon followed attacks of epigastric distress and sharp shooting pains in the legs, necessitating a cessation from work. Then several good courses of treatment for syphilis were given. Much relief was obtained from these. A little later he was operated on for suspected gallbladder or gastric trouble, and the appendix was removed. The pains were not relieved by these operations. Then he was given morphine for the crises, receiving as much as 3 grains (0.2 Gm.) daily. The morphine habit had continued until three weeks before his entry into the hospital, when he voluntarily stopped using the drug but stated that he had "gone to pieces nervously" since. Charcot joints developed suddenly in both feet, twenty months after our first examination.

Fig. 1.—Herpes zoster clusters at height of acute stage and old scars from former active lesions in second sacral dermatome, bilateral.

The patient was undernourished, had a pasty, unhealthy skin, and appeared ill. His tongue was slightly coated. Epitrochlear glands were palpable and an anterior and posterior cervical adenopathy found. The heart and circulation seemed normal. The abdomen presented a large operative scar in the right lower quadrant. His gait was fairly good except for a marked limping accounted for by a 2-inch shortening of the right leg resulting from the right Charcot knee. A slight Romberg sign was noted. A mild ataxia was present in the lower extremities but not in the upper. All upper deep reflexes were sluggish. The Achilles reflexes were absent but the patellar reflexes were sluggish. The abdominal reflexes were present. The Babinski, Oppenheim and Gordon phenomena were negative. Deep muscle sense in the lower extremities was diminished. No definite analgesias or anesthesias were discovered. Charcot joints now involved the right knee and both feet. The pupils reacted quite sluggishly to light, but fairly well in accommodation. They were irregular and unequal.

* From the Neuropsychiatric Department of the University of Kansas School of Medicine.
* Read before the Section on Nervous and Mental Diseases at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

1. Levaditi, C.: L'Herpes et le zona, Paris, Masson et Cie, 1926.
2. Sutton: Diseases of the Skin, St. Louis, C. V. Mosby Company, 1928, pp. 301-311.

Positive blood Wassermann reactions had been reported before he came under our observation. A blood Wassermann test and a Kahn test were negative. Blood counts and urinalysis gave normal results. A spinal fluid examination was made, October 2. The pressure measured 28 mm. of mercury. Three lymphocytes were counted per cubic millimeter. Pandy and Wassermann reactions were negative. The colloidal gold curve was 0001100000. An x-ray examination of both knee joints showed the left normal. On the right was seen a distortion of the patella and marked changes in the bone and articular surfaces. Few hypertrophic manifestations were recorded. Clinically, the joint seemed to be a Charcot, but the roentgenologist would not make a positive diagnosis.

Since the first admission to the hospital the patient had entered Bell Memorial and St. Margaret's hospitals on nine subsequent occasions for periods ranging from a few days to six weeks, usually on account of gastric crises. Another spinal fluid analysis, Jan. 17, 1927, revealed 3 lymphocytes per cubic millimeter and a colloidal gold curve similar to the previous reading. June 1st, the spinal fluid was again examined and

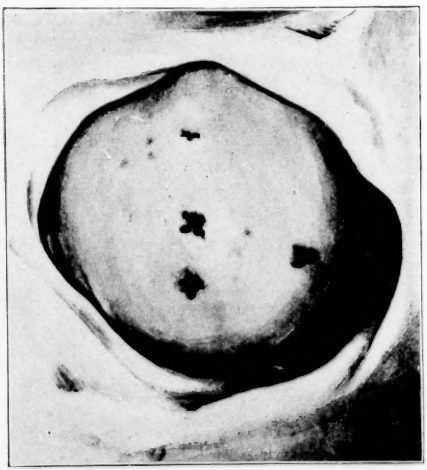

Fig. 2.—Appearance of a few herpes zoster clusters during the very acute stage of the eruption.

had 2 lymphocytes per cubic millimeter, a negative Wassermann reaction and a negative Pandy reaction; the colloidal gold curve was 0010000000.

As the patient had not obtained any relief from several courses of anti-syphilitic and symptomatic treatment, it was decided to give him tertian malaria. This was begun on September 2. He was permitted to have 18 well developed paroxysms. Following this he improved somewhat for a few months. Then the gastric crises appeared with the same severity and frequency and with the usual zoster.

When first coming under our observation and treatment, the patient gave a history of having had recurrent vesicular eruptions over the upper posterior surface of the thighs. They might appear on the right, left or bilaterally, usually about five or six weeks apart. Each eruption would last from seven to ten days with the usual zoster course. Several or many of the typical clusters were noted each time. Not much pain was present. The clusters occurred only during the crises. The skin area involved has been limited to the second sacral metamere. The clusters appeared quite regularly from the time of the first observation to April 1, 1928. Thus the duration of the recurrent herpetic zoster attacks was something more than three years.

COMMENT

There are a number of interesting points connected with this case that might be subjected to a critical analysis; I shall, however, confine myself largely to the topic at hand; namely, the recurrent attacks of herpes zoster.

The history indicates that the patient was addicted to the morphine habit. However, it was a mild one, in view of the fact that the maximum amount used in any twenty-four hour period was 3 grains (0.2 Gm.) and that the patient was a comparatively easy one for the removal of the drug, despite the periodic gastric crises, which undoubtedly were distressing. The drug addiction had no bearing on the zoster.

The original and final diagnosis was tabes dorsalis. At times the patient was subject to some auditory hallucinatory ideas, but he had insight and they did not affect his conduct. This was about the only suggestion that might lead us to consider the possibility of an added early paretic change in the brain. Other observations for paresis were distinctly negative.

Relative to the diagnosis of tabes and an antecedent syphilis, I might call attention to the history of a chancre on the penis ten years previously; positive Wassermann reactions on the blood before the patient came under our observation; the lancinating pains; the gastric crises; the altered deep reflexes in the lower extremities; the irregular, unequal and Argyll Robertson pupils; the feeble Romberg sign; the mild ataxia in the lower extremities, and an epitrochlear adenopathy. This diagnosis is made in spite of the fact that on two separate occasions complete analyses of the spinal fluid were made which gave negative Wassermann, colloidal gold and Pandy reaction. On both occasions there was a lymphocyte count of 3 cells per cubic millimeter. It is recognized that some cases of syphilis, even by the various methods of testing may give a negative complement fixation. A negative Wassermann reaction is more likely to occur in the various congenital syphilitic states and in the metasyphilitic syndromes.

Charcot joints are observed in the metasyphilitic diseases, in particular for tabes. However, they have been found in syringomyelia and a very few other conditions.

Like many other patients with tabetic abdominal crises, our patient, too, underwent an operation for either some stomach or gallbladder disorder presumably. We were informed that no surgical disease of any of the organs was found by this laparotomy. Probably today there is seldom an excuse for opening the abdomen only to find later some kind of an abdominal tabetic crisis.

A number of authors have mentioned a lymphocytosis in the spinal fluid. Head [3] has stated that this occurred in a high percentage of his cases. Lhermitte and Nicolas [4] report one case of zona involving the left first, second, third and fourth cervical dermatomes. Their patient had a lymphocyte count of 88 per cubic millimeter and a negative Wassermann reaction. Levaditi [1] reports a lymphocytosis in the spinal fluid in some cases. Brown and Dujardin,[5] in twenty-eight cases of zoster and nonsyphilitic cases demonstrated a lymphocytosis in twenty-two, the count ranging from

3. Head: in Allbutt's System of Medicine, New York, Macmillan Company **7**: 470, 1905.
4. Lhermitte, J., and Nicolas, M.: Encéphale **22**: 245 (April), 313 (May) 1927.
5. Brown and Dujardin: Brain **42**: 93 (April) 1919.

5 to 470. A second puncture in five of the patients two or three weeks later revealed a striking reduction of the cells. Schaller [6] records five out of eleven non-syphilitic cases with a pleocytosis. I had one patient in October, 1927, having a left seventh dorsal herpes zoster, with a typical course and no recurrence. Her lymphocyte count, October 29, with the zoster eruption at its height, was 25 per cubic millimeter. November 30, the count was 7; December 10, 7; April 10, 1928, 2, and on April 20, 1½ per cubic millimeter.

In a review of the literature that might possibly bear on the narrow portion of the topic under discussion, I find exceedingly few cases that need be given any serious critical consideration. No exact case parallel to the one here reported has been found. Many of the textbooks on neurology and dermatology say nothing about recurrent herpes zoster. Sutton [2] mentions "repeated attacks" under the heading of prognosis, and states that one attack usually confers immunity.

Grindon,[7] in 1895, reviewed carefully the literature and quotes a number of cases that most likely do not belong to the zoster group. He reports two cases of his own that might be herpes zoster, recurring many times. Adamson [8] discussed herpes recurrens. Certainly nearly all of his cases and quoted ones belong to the herpes simplex or febrile type. Their lesions occurred mostly on the lips or cheeks and in the genital areas. Possibly some medical men would classify two of these most likely cases involving the buttocks, in women aged 24 and 28, and appearing irregularly for two or three years just prior to the menstrual time, as not belonging to the zoster group. He quotes Sequeira's cases occurring in women over the buttocks during the menstrual time. He cites Weber's three cases which the original author declares to be "dermatitis herpetiformis." I should be inclined to think that none of these cases should be classed as herpes zoster. Even though there may be admitted a rather close relationship of herpes simplex and herpes zoster, they seem to have a clinical difference. Rolleston [9] describes a case of his own in a boy 13 years of age, having had six attacks of herpes on one or both cheeks following a pneumonia. Probably this should not be classed as zoster. Rolleston quotes a case reported by Delabast in a boy, aged 11, in whom recurrent herpetic eruptions occurred in about the same facial area and at about the same time each year since birth. There were no signs of congenital syphilis. This, too, should not be classed as herpes zoster. There are some other cases in the literature with recurrent herpetic eruptions either in the facial or in the genital areas that do not belong to the herpes zoster group.

An interesting problem relative to herpes zoster is the possible relationship that syphilis might bear to the syndrome. Some indicate that zona occurs more frequently in people known to have had syphilis. Jeanselme,[10] Anderson,[11] Boas,[12] Immerman [13] and Thalhimer [14] lay some stress on the trouble occurring in a comparatively large number of those afflicted with tertiary syphilis involving the nervous system, tabes and paresis. The question arises whether syphilis might lower the resistance of the intervertebral ganglions or the dorsal roots and thus more readily permit some kind of bacterial ganglionitis. Another query might be raised relative to a neurotrophic type of spirochete attacking especially the posterior ganglions.

6. Schaller, W. F.: California State J. Med. **16:** 453 (Oct.) 1918.
7. Grindon: J. Cutan. & Genito-Urin. Dis. **13:** 191 (May), 252 (June) 1895.
8. Adamson, H. G.: Brit. J. Child. Dis. **13:** 193 (July) 1916.
9. Rolleston, Humphry: Tr. Roy. Soc. Med. Prac. **17:** 49, 1923-1924.
10. Jeanselme, E.: Presse méd. **124:** 264 (Sept. 28), 1927.
11. Anderson: J. Cutan. Dis. **32:** 230, 1914.
12. Boas, E. P.: J. Nerv. & Ment. Dis. **45:** 531 (June) 1917.
13. Immerman, S. L.: Herpes Zoster in Tabes, J. A. M. A. **68:** 1607 (June 2) 1917.
14. Thalhimer, William: Herpes Zoster, Arch. Neurol. & Psychiat. **12:** 73 (July) 1924.

ETIOLOGY

Since the discovery of some kind of parasite or bacterium as the cause of many diseases, it is not surprising that many have searched for a specific organism as the cause of herpes zoster. The self limitation of the disease process and the customary immunity conferred on the patient by one attack indicate forcefully such an etiology. According to Marinesco and Draganesco,[15] Landouzy in 1883 stated that it was an infectious malady. Head,[16] in 1900, gave a very complete report of seventeen cases of herpes zoster, and also narrates fully the autopsy material for all. He concluded decisively that it is caused by an unknown organism. Animals were inoculated successfully. He laid much stress on the inflammation in the dorsal root ganglions. Thus the name acute posterior poliomyelitis was suggested by him. Levaditi [1] reports on his experimental work with herpes and zoster. He concludes that both types are caused by some organism but that the percentage of successes in the febrile herpes is greater than for the zoster type. Lhermitte and Nicolas [4] report similar successes but emphasize prominently the fact that the inflammatory process is not limited to the posterior ganglions. They demonstrated autopsy material in cases free from syphilis in which there were infectious infiltrations and secondary nerve fiber and cellular degenerations in peripheral nerves, posterior roots, spinal cord and brain, besides the pronounced involvement of the posterior ganglions. Rosenow and Oftedal [17] prove conclusively that the disease can be transmitted to lower animals. They conclude that the cause is one of the varieties of the pleomorphic streptococcus. Lipschütz,[18] with rabbit inoculations, was successful in 100 per cent of the simple herpes and only 43 per cent of the herpes zoster. Others have discussed the possibility of micro-organisms as the cause of the disease.

Some authorities have the conviction that there is a neurotrophic type of a causative organism with a selective affinity for the posterior ganglia. Levaditi,[1] Lhermitte,[4] and Stewart [19] are inclined toward this belief. Rosenow [20] may be interpreted as having the same opinion relative to his pleomorphic streptococcus.

Occasionally other conditions have been cited as the cause of herpes zoster. The possible relationship of chickenpox and herpetic eruptions is given some consideration by many scientific men. Eaton [21] mentions tuberculosis as one cause. A number of organic and inorganic toxic chemical substances have been mentioned. Possibly more than one factor may be operative in some cases.

Some one might conclude that my patient should be considered as having some septic organism as a cause and that the syphilitic or tabetic condition may

15. Marinesco, G., and Draganesco, S.: Rev. neurol. **30:** 30 (Jan.) 1923.
16. Head and Campbell: Brain **23:** 353, Part III, 1900.
17. Rosenow, E. C., and Oftedal, S.: J. Infect. Dis. **18:** 477 (May) 1916.
18. Lipschütz, B.: Arch. f. Dermat. u. Syph. **136:** 429, 1921.
19. Stewart, J. P.: J. Laryng. & Otol. **42:** 665 (Oct.) 1927.
20. Rosenow, E. C.: Elective Localization of Streptococci, J. A. M. A. **65:** 1687 (Nov. 13) 1915.
21. Eaton, W. E.: U. S. Nav. M. Bull. **10:** 323 (April) 1916.

have been an added factor merely to lower the resistance. However, if herpes zoster is considered as an infectious disease of the dorsal root ganglion, it is rather difficult to understand why so many recurrences of the condition have appeared in the course of about three years.

Again, the perfectly typical attacks of herpes zoster eruptions have occurred from four to six weeks apart and always during the gastric crises. They have appeared sometimes on the left, at other times on the right, and frequently bilaterally. They have always appeared in the region of the second sacral segmental area. He has never had either herpes or zona in any other dermatomes. Ordinarily herpes zoster is considered a self limited disorder, probably producing an immunity for at least a certain length of time. I believe that the vast majority of cases of herpes zoster are caused either by one of several septic organisms or by a particular one. But there are other possible etiologic factors. The herpes zoster syndrome in my case is caused entirely by the syphilitic or tabetic process involving especially the second sacral posterior ganglions and possibly the dorsal roots, or bears a close relationship to it.

SUMMARY

1. True recurrent herpes zoster certainly is uncommon. The self limitation by the establishment of immunity may account for this state relative to ordinary zoster.

2. Syphilis in a patient seems to favor the possibility of the development of herpes zoster.

3. While it is generally accepted that some organism produces ganglionitis and secondarily the eruption in most cases of herpes zoster, it is possible that in a small percentage there may be some additional etiologic factor or other sole cause, whether syphilis, trauma or neighborhood disease, such as tuberculosis and malignant neoplasms.

ABSTRACT OF DISCUSSION

DR. A. E. STERNE, Indianapolis: Some years ago a patient showed a multiple recurrent herpes zoster on one side just below the umbilical level, with the syndrome of a modified syringomyelic type. This patient died from intercurrent disease. The specimen shows a small gliosis in the posterior horn, a slight tumor measuring possibly one-eighth inch in length and about one-sixteenth to one-twentieth inch in breadth. The patient had recurrent multiple attacks of herpes zoster almost constantly. One attack would recede, to be followed almost immediately by another. These attacks lasted for a period, all told, of two and one-half years. The specimen indicates the cause of the herpes zoster, which was accompanied by marked lancinating pain in the area in which the herpes zoster developed. The clinical syndrome was one of a syringomyelic type with slightly dissociated sensory phenomena accompanying it.

DR. A. L. SKOOG, Kansas City, Mo.: I was very much interested in hearing Dr. Sterne's brief report of his case of syringomyelia with such frequent recurrent eruptions of herpes zoster. This might be included under the neighborhood disease as being a cause. I want to ask Dr. Sterne whether the intravertebral ganglions on both sides were examined in his case.

DR. A. E. STERNE: The intravertebral ganglions did not show any involvement whatever. The sole pathologic condition in the area of the herpes zoster was the slight gliosis in the one posterior horn. In relation to that, it is not impossible in a syphilitic case of this character that there might be a lesion of a more concrete character, a very slight degree in the posterior horn which would give the so-called posterior poliomyelitis type in the syphilitic case.

Clinical Notes, Suggestions and New Instruments

A NEW SPLINT FOR FRACTURE OF THE CLAVICLE

ROBERT V. FUNSTON, M.D., DETROIT

Fractures of the clavicle are in general treated by one of the following methods:

1. The use of the clavicular cross.
2. Recumbency on sand bags.
3. The Velpeau bandage.
4. Operation, when open reduction seems necessary.

Of these methods, the use of the clavicular cross has apparently been the means of obtaining the most satisfactory results. It is not without mechanical objections, however, for the bulkiness of the dressing and the pressure against the vessels and nerves in the axilla, as well as the loss of tension when the dressings have loosened, have frequently made its use a burden to the patient and troublesome to the surgeon.

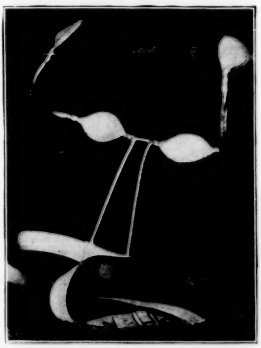

Fig. 1.—Shoulder splint for fracture of clavicle.

These objections have to some extent been overcome by the use of the splint here described.

The splint is made of steel rods, usually about one-fourth inch in diameter. It is twisted to shape on a die, welded, and covered with leather. The pressure points are covered with felt.

On one occasion, an adjustable brace was made of flat stock steel, set-screws being used for the adjustment.

The apparatus is entirely retained by one strap which goes about the waist. By the "lever" action of the brace the strap controls the force of the correction. Pressure is exerted against the heads of the humeri by means of drums, thus avoiding any unnecessary pressure.

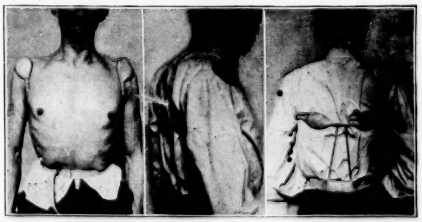

Fig. 2.—Splint applied.

Under the arms there is no contact between the brace and the body. This allows free use of the arms without constriction in the axilla.

Since the brace conforms closely to the body lines, it is not apparent under ordinary clothing.

From the standpoint of efficiency, the splint seems fully to have justified its use. Of the seven patients treated exclusively by this means, very satisfactory anatomic results have been

obtained in all. End-to-end approximation of the fragments was obtained in four cases. Figures 3 and 4 demonstrate the result when there is a comminuted fracture with overriding.

If the splints are kept for emergency use, it is necessary to have three sizes. Ordinarily it is satisfactory to keep the

Fig. 3.—Comminuted fracture of clavicle with shortening.

patient in bed a few days, using sand bags until an individual splint can be made.

The correct fitting at the beginning of treatment is the only difficulty connected with the use of the splint. When worn it acts to reduce the fracture, and it is usually possible in transverse fractures to obtain an end-to-end approximation of the fragments by manipulation after four or five days, in which case the splint need not be worn longer than four weeks. With a spiral or an oblique fracture, it is necessary for the splint to be worn from six to eight weeks.

Fig. 4.—Comminuted fracture of clavicle with shortening, under treatment with splint.

In addition to its use in the treatment of clavicular fractures, the splint has been found to be an efficient means of bracing the spine in the after-treatment of dorsal fractures as well as in the correction of round shoulder deformities.

FRACTURE OF LEFT FEMUR AT HIP JOINT AND LEFT HUMERUS AT SHOULDER JOINT*

A. H. BAKER, M.D., ELMIRA, N. Y.

Aug. 17, 1926, Mrs. M. R. E., aged 76, while hurrying through the hall at her residence, fell with such force that she suffered a comminuted fracture of the left femur at the hip joint and a fracture of the left humerus at the shoulder joint. I reached her house a few minutes after the accident and found her where she had fallen, suffering much pain and shock. As such patients usually assume a position in which they have the least amount of pain, I did not attempt to move her but gave her a hypodermic of morphine and atropine and allowed her to remain in the position she had assumed until the morphine had had time to take effect. At the same time I had heat applied for the purpose of combating shock.

When she was well under the influence of the morphine, I placed her in bed with the assistance of two men and supported the leg with pillows in a position causing her the least amount of pain.

After she had rested but while she was still under the influence of the morphine, I had her removed to the hospital, where she remained seven weeks. During that time I made no attempt to place her in any sort of unyielding appliance but kept the foot in a fairly normal position with pillows and sand bags, and, as the arm was too painful to move, she kept it in good position without mechanical restraint. At the end of six weeks, when she had recovered her appetite and the tendency to spasm of the muscles of the thigh had disappeared, she was lifted from the bed and placed in a wheel chair for a short time

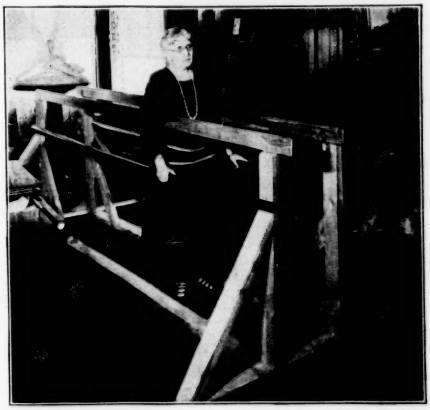

Fig. 1.—Parallel bars with hand rails as aid in teaching patient to walk.

once or twice daily. At the end of seven weeks she was removed in the ambulance to her home. The arm at this time had practically recovered. After returning home she remained in bed for the greater part of the twenty-four hours the next six weeks, except that she was partially lifted out of bed by two persons and placed in a wheel chair each day and encouraged to take two or three steps while doing so. She was very timid and, of course, at her age, not very secure on her feet, even before the accident, and she felt the utmost fear of attempting to use crutches.

Fig. 2.—Movable supports used later for more extensive walking.

In trying to figure out some means of encouraging the patient to walk, I chanced to think of the parallel bars in a gymnasium, and I decided to use the device for the purpose of educating her to walk again. With the valuable help of the foreman of a local carpenter shop I made the device shown in figure 1. It was 11 feet in length, and after being made was knocked down, taken to the patient's house and set up in the largest room. The height I determined by measuring from the axilla to the floor and from the crutch position of the hands to the floor.

* Read before the Elmira Academy of Medicine, Oct. 11, 1927.

It will be noted at once that a person standing between the two upper parallel bars with the hands resting on the lower parallel bars would feel perfectly secure from falling. And that was exactly what occurred in this case. The dread of crutches and the fear that any one helping her might let her fall immediately disappeared, and in two or three days she was able to slide out of her wheel chair and help herself into the bars.

Just the change of position was most grateful to her, and it was observed from day to day that she remained longer on her feet and added to her steps. At first she put almost all her weight on the hand rails, but each day she put a little more weight on her feet until finally she walked up and down between the bars twice daily for a distance of from 300 to 500 feet, bearing very little of her weight on the hand bars. When she had reached this point, which had taken her about six weeks longer, I tried to think of some other device by the aid of which she could get about the house without using crutches. The result was that I had made by the same foreman the supports shown in figure 2. They were made of very light material and were not burdensome to the patient. She quickly learned to use them, first both and later only one, and Aug. 1, 1927, one year from the time of the accident, she discarded them both. She now goes about her house with the aid of a cane, goes for rides in the automobile, and frequently walks a block or two in the evening. She is able also to go up or down a flight of steps.

109 West Water Street.

AN AUTOMATIC CANOPY TABLE*

N. M. H. BLUMENKRANZ, M.D., NEW YORK

Perfect sterility should be and is the goal of all operating room technic. The attainment of absolute perfection can be worked out best by the individual responsible in each institution taking into consideration all the local problems.

Of the many problems, however, common to all hospitals, there is one which has always presented difficulty—the maintaining of the reserve instruments and catgut on the supply tables in the operating room always covered, despite the length and the requirements of the operation, and at the same time permitting the instrument nurse to obtain her supplies quickly and without delay.

Most institutions keep the tables covered with sterile towels or a sheet which must be turned back by the nurse with forceps; then these forceps, having touched the outside of the sheet, cannot be used to remove instruments. This procedure also requires the reapplication of the sheet after each removal of an instrument. All this while the surgeon is impatiently waiting. To save time, occasionally, a second nurse is used who takes care only of the supply table. The result of this frequently is that the reserve tables are left uncovered during the entire operation.

There has been in use for some time a canopy supply table. This consists of a permanent wire frame about 2 feet above the table, over which is draped a sheet, forming a tent with one side open. While this does keep the supplies covered to a certain degree, it is not a complete protection, and it darkens the table and has other obvious disadvantages.

The device described here, which may be attached to any supply table, more particularly the rectangular type, has been found to solve this problem. It consists of a double wire frame shaped to the circumference of the table, the two portions being held together by upright sections of wire at the angles and at the center of each side. The uprights are 3 inches in height, giving the frame a depth of 3 inches. This frame is attached by two hinges to the rear edge of the table. From the hinges a Y piece extends down to join a bar running forward under the table about 6 inches from the floor and ending in a pedal. The pedal bar at its distal end connects in a rotating joint with a cross-bar attached to the two rear legs of the table.

Pressure on the pedal raises the frame, which, under control of a small oil check, automatically descends slowly into place.

A slip-cover for the frame is made of ordinary hospital muslin, which is joined to the cover used for the table; thus the frame and table are draped in one, and an extra sheet is then placed over the table proper. After draping, the instruments and catgut are arranged on the table while the frame is held in an elevated position. The table is now ready for use, and the canopy is allowed to descend to cover the supplies.

Now, if the instrument nurse desires anything from the reserve table, it requires only a moment to step on the pedal; the canopy is elevated, exposing the supplies; the nurse selects her instrument, and steps back to her operative field, and the canopy automatically lowers, protecting the rest of the instruments. This maneuver can be repeated as frequently as necessary, and the instrument desired is procured without delay and without possible break in sterility.

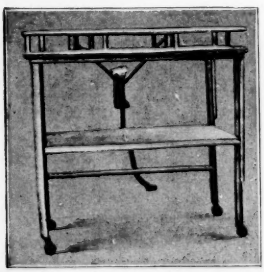

Fig. 1.—Reserve instrument table without draperies.

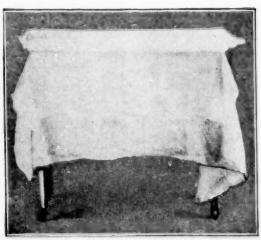

Fig. 2.—Table draped; canopy down; instruments covered.

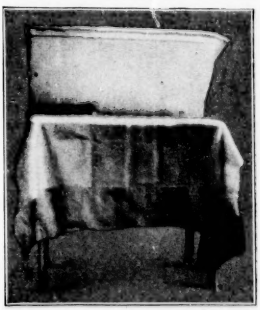

Fig. 3.—Table draped; canopy elevated; instruments exposed.

A self locking device was not attached to the table because it was felt that during the hurry of an operation the canopy would frequently become fixed in an upright position, making it necessary for the nurse to return to the table to release the lock. This would in a great measure destroy the automatic covering of the instruments.

This table has been in use at the Sydenham Hospital in New York. Since its conception, the use of the automatic canopy has extended beyond the operating room. In the emergency room where a large number of instruments are to be kept sterile for the day, or in a physician's office where several minor procedures are contemplated during the course of the day, such as cystoscopies and nose and throat treatments, the instruments can be prepared in the morning and kept sterile the entire day. At the same time it becomes a simple matter to remove an occasional instrument.

The Kny-Scheerer Corporation of America has been kind enough to make the tables for use in various sizes.

617 West End Avenue.

* From the Surgical Service of the Sydenham Hospital.

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Council on Physical Therapy

THE FOLLOWING ARTICLE HAS BEEN APPROVED BY THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION.
H. J. HOLMQUEST, SECRETARY.

OCCUPATIONAL THERAPY

HARRY E. MOCK, M.D.
AND
MARY L. ABBEY
CHICAGO

The only thing that is really new about "occupational therapy" is the name, as work or occupation as a therapeutic measure is not new but has been used for many years in the care of the sick. Records have been found in which work was advised as a remedial measure nearly a hundred and fifty years ago, and it is probably one of the oldest remedial methods. We read that passive occupations were used for mental patients by the Egyptians and Greeks.

In the early days the "work therapy" consisted of the patient being engaged in helping with the work about the institution. The women did housework, such as washing dishes, scrubbing floors, making beds, helping in the laundry, and doing the sewing, while the men worked in the gardens and helped with the carpenter work about the institution. But gradually this has been changed and in later years the occupation or employment given the patient is given purely as a therapeutic measure.

Even before the World War it was considered worthy of a name and was spoken of as diversional occupation, ergotherapy and work therapy. The term occupational therapy was first used in 1914. Its development may be traced from simple measures, such as amusements, recreation and tasks about the hospital, to the more definite and scientific therapeutic treatment which had begun to be used even before the war.

With the problem of reeducating the crippled soldier, it was soon recognized that the service required special training, and that proper organization of the service was necessary if the treatment was to be administered as physicians and surgeons desired to have it. In connection with physical therapy and with medical and surgical treatment, it was a link in the chain of the rehabilitation of the disabled soldiers. Since then it has come into use in all forms of mental and physical disability, and more and more hospitals and clinicians are adopting it as a definite part of their treatment program.

From a meeting of six sponsors in March, 1917, at Clifton Springs, N. Y., which constituted the original society and founded the "National Association of Occupational Therapists," there has grown an organization of 900 members, 7 per cent of whom are physicians. The real purpose for which the association was founded was the promotion of treatment by suitable occupation.

There are twenty local and state societies and seventeen training schools, a majority of which are generally observing the minimum standards of training that have been adopted by the national association. Some have lengthened their course beyond the minimum standards. Fortunately for professional standards, the extension of the training is in actual hospital work and is being more largely directed toward the psychologic and psychiatric field, with its large bearing on all other fields of medical service. The association is establishing a national register of qualified occupational therapists. Every occupational therapist is thoroughly imbued with the principle that she must work in conjunction with the physician in charge of the case.

Occupational therapy has been defined broadly as "the science of prescribed work." Mrs. Eleanor Clarke Slagle has given this witty definition: "It is directed activity and differs from all other forms of treatment in that it is given in increasing doses as the patient's condition improves." The definition that has been adopted by the national association as best describing the functions of occupational therapy was the one given by Dr. A. H. Pattison of the National Tuberculosis Association: "Occupational therapy is any activity, mental or physical, definitely prescribed and guided for the distinct purpose of contributing to the hastening of recovery from disease or injury and of assisting in the social and institutional adjustment of individuals, requiring long and indefinite periods of hospitalization." Some one has added that "it should include all activities formerly carried on in some hospitals under the designation of preindustrial training and prevocational training." In 1917 one of us (Mock) divided occupational therapy into three types: (1) diversional; (2) purposeful or curative, and (3) prevocational.

Diversional therapy need not always be work but may be simple amusements, anything that will tend to divert the patient's mind from his illness. Physical exercises, games and music often play a very important part in the occupational therapy program. Games requiring skill in the use of the fingers are useful amusements, having curative value, especially in the work with crippled children and with the nervous and mentally ill.

Diversional therapy is more often given while the patient is still in bed or unable to leave the ward, and should be given as soon as practicable after the patient's arrival at the hospital, as it is much more difficult to arouse interest in work after "hospitalization" has set in. The purpose of these occupations should be to create contentment and stimulate interest by congenial work, thus endeavoring to keep the patient cheerful and happy. Many diversional occupations may be given here and should include projects which will prepare the patient for more purposeful work later in the hospital work shop. Another important result of this early work is the maintenance of the habit of activity.

Drawing, both free hand and mechanical, is an excellent bedside and ward diversion, as it is used in many productive occupations and has a fascination for almost every one. Drawing has been called "the universal language." This feature makes it especially adaptable to the city ward, where nationalities mingle and where many have a very limited use of the English language. It may also act as a socializing agency.

To be purposeful or curative, occupational treatment is employed not only to occupy the mind but with the direct purpose of the restoration of impaired function, and it may include any occupation that will assist the body to resume its normal functioning and to reestablish capacity for the patient's usefulness, both industrial and social. It requires the doing of definite tasks and the making of useful things. Many times purposeful treatment is given as bedside work and sometimes as ward work, but more often it is given in the workshop. Patients should go to the workshop whenever possible,

if for no other reason than for change of environment. It gives variety to the day. The workshop usually has the least possible resemblance to any other room of a hospital. It should always be and usually is a place of happy activity and cheerfulness, and this cheerfulness has a very definite therapeutic effect. The patients who come to look on are soon busy at work in the stimulating environment the shop affords away from the hospital atmosphere. More interesting and varied work can be given here, as tools and appliances can be used which will give exercise to impaired parts and reestablish in the patients habits of industry. These projects should be practical as far as possible and have vocational leads.

Prevocational therapy is prescribed work which will lead to definite training for some trade or industry and should include occupations that will help the patient better to provide for himself and his family after having received maximum benefit. This is the last step in occupation as a form of treatment.

Many times the work is along the same line as that given the patient while he was still in bed, only more

Fig. 1.—Occupational therapy shop at St. Luke's Hospital.

advanced. For example, often one of the first occupations given a patient is basketry. Naturally it must be a small and light piece of work easily handled by the patient while in bed. In the workshop this often develops into the making of large pieces of reed furniture. Several of our patients, disabled to such an extent that they could not return to their old occupation, or seeing a greater opportunity in this new field, have taken positions in a reed factory or a chair factory.

Drawing was mentioned as being a practical and useful bedside occupation. It has many vocational leads, as practically everything made depends to a certain extent on a knowledge of drawing. Mechanical drawing would prove a valuable asset to any patient and would almost invariably assure a better position. These and many other forms of work therapy can be developed into prevocational training. In prevocational training the essential emphasis is placed on the finished article, the making of which is taken as a means of training toward a livelihood. In the other two types of occupational therapy the movements or exercises are given as treatment, the article produced being of secondary consideration.

The mental effort required to do a piece of work or to undertake some project is beneficial in that it teaches mental and motor coordination. Work renders the patient more contented, thereby increasing the effectiveness of other treatments. It occupies spare time and assists in keeping the patient in the hospital until maximum hospital benefit has been received, and also gives the patient an opportunity to determine his ability to undergo physical exertion before leaving the hospital.

It is discouraging to the patient to note purely physical reconstructing processes taking place if mentally he cannot see any future for himself as a self respecting, self supporting member of society. To feel physical strength returning to a handicapped body and not to know of any possible field of endeavor in which one may succeed is the blackest of all mental experiences.

Occupational therapy comes with its message of economic hopefulness, its suggestion of new social adjustments, and its inspiration for endeavor. The days that must be spent in the hospital cease to be a period of "shelving" and become an opportunity to achieve an occupational or vocational education. His cheerless discontent vanishes and his spare time, instead of breeding worry, becomes a time for happy planning. He is willing to remain in the hospital until the maximum of physical benefit can be derived, for he no longer feels it to be "lost time." It also encourages him daily, as he has the chance to determine his physical ability through systematic and prescribed exertion, thus knowing his own fitness before leaving the institution. He has the opportunity to show his ability to fit into the economic scheme, and often inspires an interest in placement agencies that are instrumental in helping him to secure work possible to his physical and mental power.

To the therapist the statement of Dr. John D. Adams should be axiomatic: "Occupational therapy should never be applied without the prescription of the doctor in charge of the case."

The work is especially beneficial in those cases in which prolonged rest is most essential. For the restlessness and harmful exertion graded activity to a purposeful end is happily substituted. The overworked muscles, especially in cardiac cases, are given the required rest while other muscles are brought into interesting activity. This work, intelligently done, under the direction of the physician in charge, accomplishes the required exercise without superinducing undesirable symptoms. It guides both patient and physician in the choice of industrial adjustment, especially in cardiac cases.

Occupational therapy has a most definite work to do whenever patients are hospitalized for the treatment of tuberculosis. The long idle period necessary to the reinstating of the tuberculous victim in his social contacts is fraught with psychologic danger, unless the patient is most carefully supervised. Melancholia, discouragement and habitual idleness are conditions not much more alarming to the physician than the opposite manifestations of excessive cheerfulness, which ignores all restraint, and overambition, which destroys faster than the creative forces can renew. In both these extreme reactions to tuberculous hospitalization, occupational therapy comes as a saving medium. It brings contentment, interest and proper exercise. It trains the mind and body for a better adjustment to old environments, if these are desirable for the patient, or equips him to fill other industrial positions when he

has been pronounced fit for wage earning or home making.

For both the tuberculous and the cardiac types the work must begin with the lightest forms, such as basketry, weaving on cardboard or light weight frames, rake knitting, simple leather work and knotting. These may be advanced as the patient grows in strength.

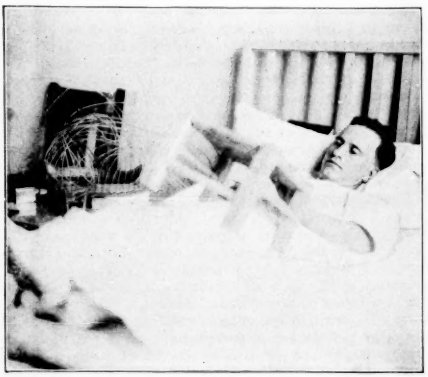

Fig. 2.—Bedside occupation adds to the morale of the patient and makes three months' confinement pass more rapidly.

This applies practically to all cases of nephritis, arthritis, anemia, diabetes, empyema and many other chronic medical conditions in which long periods of bed rest are required.

As recorded, occupational therapy was first recognized and used in the treatment of mental cases. Practically every hospital realizes its importance in training mental patients to orderly habits of thought and action, in replacing morbidness with healthy thought and in awakening interest and ambitions. It is the means whereby the patient is led again to normal activities and associated thought.

CONDITIONS IN WHICH OCCUPATIONAL THERAPY IS BENEFICIAL

For those less easily placed types of mental disorder that may come under the broad heading of neurasthenia and psychoneuroses, occupational therapy is of inestimable value. These patients frequently enter wards under the guise of having disease of organic basis, but in realty they are suffering mainly from nervous or mental functional disorders. As occupational therapy is a means to an end, it often requires a tactfully planned approach and a well worked out method of procedure to arouse the patient's interest in the work.

The following case illustrates the curative value of occupational therapy in this type of condition:

CASE 1.—A woman, aged 43, married, the mother of three children, entered St. Luke's Hospital in 1923 in the service of Dr. Mock, having been referred because of the possibility of carcinoma of the stomach. She gave a history of illness of three years' standing, during which time she had been in two different hospitals and one sanatorium, had consulted ten different physicians, and had tried the treatment of two different cults. Her chief complaints were indefinite pains in the abdomen, constipation, loss of weight of about 20 pounds (9 Kg.), loss of appetite, insomnia, photophobia, fear of loss of eyesight, and extreme depression because of fear of the existence of cancer. Physical examination and complete laboratory tests were absolutely negative for organic disorder. Examination of the eyes by Dr. J. Wendell Clark did not show any pathologic changes. Roentgen-ray examination of the gastrointestinal tract was negative except for a marked spasticity of the colon. Dr. Eugene Talbot was called to treat the latter condition and in a short time had overcome the constipation. In spite of a careful explanation of her condition in which she was assured of the nonexistence of cancer, that she was not going blind and that organic disease did not exist, the depression and phobias persisted. She had been discharged from two hospitals with the assurance that nothing was wrong and still she remained sick and unable to care for her family, so we determined to cure her. Up to this time Dr. Mock had usually thought of occupational therapy as only for ward cases and not for private room patients, but in desperation Mrs. Abbey was called in.

The patient resented any suggestion of hope offered her. She crouched in a darkened room, complaining of pain. Occupational therapy was prescribed for her but when the therapist called she was accorded a very ungracious reception and stayed barely long enough to establish a civil relationship. The next day she called again, and incidentally had some attractive work in a basket on her arm. The patient shied at the idea of work, and refused to become interested. Another call, and still another, before a bunch of scarlet organdy flowers for a young girl's party gown caught the eye and held the attention of the patient. She was the mother of two young girls, and the love of youthful adornments was the key to her natural responses. The therapist had established a point of contact and at once showed her own lively interest in girls and their pretty things. Within a week from the first dismal call in the darkened room the shades were raised and the patient was a busy maker of organdy flowers. Her first bunches were for her daughters, and to them they brought hopefulness of the ultimate recovery of their mother.

The interest naturally awakened spread from her own children to the doing of helpful things in the hospital workshop, where the patient came daily to assist the young children, cardiac patients and others to do the work prepared for them. In a few weeks she left the hospital a well, happy, ambitious woman. She has remained well ever since and is one of our most grateful patients.

Fig. 3.—Patient with a broken back and paralysis. Daily work on the gig saw in the hospital workshop helps in the restoration of function.

One of the commonest causes for traumatic neuroses is failure of continuous, active treatment until the surgeon is assured that his patient is well on the way to an economic end-result; that is, able to carry on once more. The diagnosis of a broken back, a skull fracture

or a fractured pelvis often strikes fear and dread into the heart of the patient; yet the treatment of these conditions in a large majority of cases is comparatively simple and the end-results are extremely good. Many times treatment consists of simply putting the patient to bed and keeping him as quiet as possible for from six weeks to three months, or, in some cases, in addition to rest, of traction applied to the lower extremities. The surgeon makes his daily rounds satisfied with the treatment of the physical condition and the progress that is being made, and never recognizes or even dreams of the fear and anxiety that is gnawing at the patient's mind. When the day comes for the patient to leave his bed and begin to move about, the surgeon is disgusted with the lack of cooperation on the part of the patient, the unwillingness to try to help himself, and the absurdity of his complaints. Finally the patient is discharged with a diagnosis of traumatic neurosis or perhaps as a faker. Fortunately, the majority of such patients are under compensation laws and are usually referred to some one who will take an interest in them, help them to overcome their fears, and gradually lead

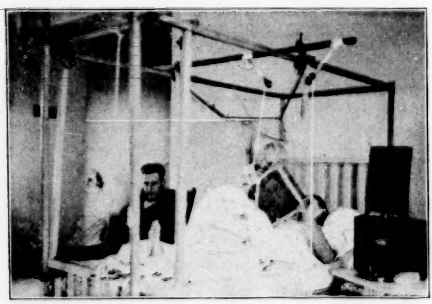

Fig. 4.—Typical scene in the hospital where occupational therapy is a part of the cure.

them back to a normal state. The most pitiful type is the patient who is hurt on the street or in the home and has no one to take this interest in him.

All such patients, in addition to the actual surgical treatment, need properly directed physical therapy and occupational therapy, which are the logical adjuncts to the usual surgical procedures. Physical therapy in the form of massage and muscle training exercises keeps up the body tone and has the psychologic effect of making the patient feel that active, continuous treatment is being supplied. Muscles thus treated will respond more quickly to the surgeon's directions when such a patient is finally allowed out of bed. Occupational therapy has kept his mind and hands employed for a large part of the day, filling in the gaps between the surgeon's visits and the physical therapy and leaving little time for the fears and germs of traumatic neurosis to develop. But when traumatic neurosis has developed, occupational therapy is one of the greatest aids in its treatment. It forms a strong leg to the tripod of surgical common sense, physical therapy and occupational therapy.

CASE 2.—J. A., a man, aged 42, married and with three children, a carpenter working in a small community in southern Illinois, in 1923 fell from a building a distance of 28 feet, injuring his back. X-ray facilities were not available to verify the diagnosis of broken back, which was made in his case. He was treated in his home, lying prone in bed for approximately six months. He was finally awarded a total disability by the compensation board. He was referred to Dr. Mock two years later to see whether anything could be done to decrease his percentage of disability. At the first examination the patient had a resigned, feeling-sorry-for-himself expression on his face; he stood with his feet a little apart and his back flexed about 10 degrees; on walking, he took steps from 10 to 12 inches long and walked very slowly; movements of the back were slow and restricted, the patient bending forward only about 25 degrees and not being able to straighten the back completely; he could raise his arms only slightly above a right angle to his body. Physical and x-ray examinations were negative for any organic disease. Functional tests showed variations in pain and tender points along the spinal column, with atypical areas of anesthesia. The observations were definitely those of a person with traumatic neurosis.

The patient was admitted to St. Luke's Hospital and was assigned to a regular routine of treatment, consisting of regular periods of exercise, massage, physical therapy and rest. In addition to this he was assigned to the occupational therapy workshop for two hours a day at first, but the time was increased daily. After about the fourth day it was noticed that the patient was spending all his spare time in the workshop. He was asked to make a special splint for one patient whom he had met and to make the peg leg portion of a temporary artificial leg for another patient. He was so handy with tools that he was soon acting as an assistant to the therapist.

At the end of two weeks the patient was walking with a normal stride, could bend over and touch the floor, could stand erect, and could raise his arms over his head. It was carefully explained to the patient that he had never had a broken back but that his trouble was all on a nervous basis which he had overcome during these two weeks in the hospital, and he was discharged. Unlike many persons with neuroses, the patient was extremely happy over his recovery and immediately returned home and went to work. While the surgeon and the physical therapist were of some aid in this recovery, the practical application of occupational therapy should receive the chief credit.

Case 3 also is illustrative:

CASE 3.—A young railroad brakeman, who in an accident was crushed through the back and chest, still complained of pain after two years and was returned to the hospital. X-ray examination and other tests showed that he had fully recovered, but he maintained that he suffered greatly. His physician prescribed occupational therapy but he refused to be interested. In many ways, day after day, the therapist tried vainly to stimulate his interest. When she had almost despaired she showed him a tooled leather bill-fold, which had such an appeal that he worked in the shop tooling leather articles so constantly that it was an effort to get him to take his other treatments. From a nervous, disturbing patient, he became a happy, helpful one in the ward.

In all cases of prolonged disability from trauma, the majority of orthopedic cases and even the more prolonged operative cases found in general surgery and the specialties, occupational therapy is the logical and beneficial adjunct to the regular treatment. The period of convalescence is usually shortened and the ultimate disability greatly reduced.

Surgery of trauma forms an important group of cases in which occupational therapy is beneficial. Illustrative cases are the following:

CASE 4.—F. B., a youth, aged 18, was admitted to the hospital with a fracture dislocation of the first lumbar vertebra

which required laminectomy. When sufficiently recovered he was given massage and physical therapy. Later he was assigned to work in the curative workshop on the velocipede saw by the surgeon in charge. The patient was very hopeful and anxious to get well and worked faithfully on the saw, making articles that would require the motions necessary to give him the exercises his physician had prescribed. After discharge he returned daily to the hospital to continue his work. He also made articles from cloth on his mother's sewing machine. The boy can now walk very well with the aid of a cane and goes everywhere any other boy can go. He could not return to his old occupation and therefore was stimulated to study while convalescing and has since entered business college to train for public accountant.

CASE 5.—J. R., a young man, had the misfortune to have his right arm caught in the belt of a piece of machinery, which tore the ligaments and muscles loose from the shoulder, causing the arm to hang useless at his side. Along with massage and physical therapy, occupational therapy was prescribed, and he was assigned to weaving on a heavy loom. This work necessitated use of the disabled arm, but in order to raise the right arm he was obliged to assist it with the left one. By diligent practice and infinite patience, after many weeks his arm was so improved that he could grasp the baton without the help of the other arm, and gradually he acquired sufficient strength in the arm and shoulder to do a very creditable piece of work. That spring his physician advised camp life for the summer, where the patient could row a boat every day. At the end of three months he returned to the hospital and was discharged as able to return to his former work.

FORMS OF OCCUPATIONAL THERAPY

Back injuries form a large percentage of the group in which physical therapy and occupational therapy combined can be of inestimable value to the surgeon. In nerve and tendon sutures, muscle transplantation, infantile paralysis, chronic arthritis, osteomyelitis, tuberculous and nontuberculous joint disease, occupational therapy has its place. In some cases the application is purely diversional while the affected parts are at rest. In other cases the work consists in reeducating the joints, muscles and nerves to their ordained functions. For those who will not again be able to carry on their work, a new set of muscles or nerves must be trained to function. In these cases neither physical therapy nor occupational therapy should be carried to the point of fatigue; occupations should be given which are best fitted to meet each peculiar condition of the case and should always be accompanied by encouragement.

The patient naturally resists the exercises or motion that hurts or causes him discomfort, but if an interesting occupation can be given which will exercise that joint or group of muscles needing retraining, in the joy of his work he keeps up the exercise, even though it may be painful.

The therapist should have specific instructions from the physician in charge of the case covering joint movements to be attained, muscles needing strengthening and length of treatment or work periods. The type of work or play then selected will be something that will produce these motions. If motion in the knee, hip joint or ankle is desired, work on the velocipede jig saw may be given. The pedals may be set to extend gradually the limit of motion in the joint. This also affords good exercise for developing weakened muscles in the legs, hips and back.

When only the ankle joint needs exercise, work on the ordinary foot pedal scroll saw, foot power loom and foot power sewing machine will give the patient the exercise required in the way of loosening the joint.

For stiffened fingers and wrists, the making of papier-mâché and clay modeling are excellent projects. Building the handles of saw, hammer and plane with wax to fit the degree of finger motion or deformity is often necessary.

In cases in which the shoulder, elbow or upper part of the back need exercise, basket and loom weaving are most applicable. Warping and weaving frames placed on the wall to the height of shoulder motion and gradually raised as joint motion increases is also a good form of exercise. The use of saw and plane in bench work is of value.

While the patient is doing these things to improve his condition, he can at the same time be making such fascinating articles that, in the pleasure of seeing these artistic things grow, he forgets the pain the exercises are sometimes causing him. While physical therapy is most beneficial in the early treatment of these cases, the active exercises of work should be instituted as soon as is practical.

When these exercises are being given it must be kept in mind that much harm may be done by overstretching atrophied muscles and tendons. Also, failure many times results through neglect in giving the proper exercise to the muscle groups needing development.

A most admirably equipped curative work shop for the care of surgical patients was situated at U. S. General Hospital 28, in the days following the World War. The patient came, with a prescription from the medical officer, direct from physical therapy or other treatment, to this work shop. Measurements were made of the function of disabled joints, and records were kept of the improvement from day to day.

CONCLUSION

There surely is no doubt as to the therapeutic value of occupational therapy in the rehabilitation of the disabled soldier, and it is disappointing that the civilian hospitals have not profited more by the splendid results obtained in the army hospitals. The therapeutic value of occupational therapy as an aid in the rehabilitation of the disabled soldier was proved in thousands of cases. In these days when hospitals are crowded with just as serious cases, as well as the chronically disabling medical cases, occupational therapy and its sister, physical therapy, are equally essential for the rehabilitation of the disabled civilian. The medical profession should demand these adjuncts as a part of the hospital equipment.

Arthroplasty of the Knee.—To the patient with bony ankylosis of the knee, a functioning joint with adequate mobility and stability is his object in seeking an arthroplastic operation. Whether or not the surgeon follows anatomical contours in modeling the new joint does not interest him, so long as the joint *functions*. It has been found by Allison and Brooks that it is absolutely impossible to duplicate experimentally, or in surgically constructed joints at the knee, the normal gliding of the articular bony surfaces. This being true, and as attempts to approximate the contour of the normal joint are so often followed by lateral instability, I have devised a technic based on well known mechanical principles which ignores the normal contours of the joint, and provides both mobility and stability. It has given excellent results in ten cases.—Albee, F. H.: Original Features in Arthroplasty of the Knee With Improved Prognosis, *Surg. Gynec. Obst.*, September, 1928.

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SATURDAY, SEPTEMBER 15, 1928

CALORIC ADJUSTMENT

The question whether the appetite is a safe guide to nutrition has been widely discussed in recent years. Under primitive conditions in nature both man and animals attain success in the selection of their food without the aid of nutrition propaganda or dietary advices of any kind; at any rate the survival of the individuals in health and well being attests the effectiveness of their choice of regimen. Whether this success has been due to unerring instincts or to an unconsciously adopted system of trial and error is not entirely clear. The existence of dietary deficiency diseases in many parts of the world is often cited as evidence against the unfailing wisdom of unguided choice. In this connection it should be recalled, however, that under the enforced conditions of advancing civilization the freedom of selection becomes increasingly restricted. Economic, geographic and even social considerations may greatly limit the field of food opportunities. The domesticated animal is restrained from unlimited foraging for food, nor is modern man much more favorably situated in the free exercise of his dietary preferences.

Some years ago Evvard [1] attempted to ascertain, at the Iowa Agricultural Experiment Station, whether the appetite and instincts of the hog are an effective aid in the selection of the animal's food. A number of characteristic foods were offered, so that free choice among them could be exercised. The outcome was favorable to the idea of unrestrained selection by the animal itself. Osborne and Mendel have also demonstrated that when animals are given a choice between somewhat similar rations, some of which are demonstrably inadequate, they may eat part of all of them but usually select sufficient amounts of the adequate mixtures to secure well being. Despite such experiences, many writers believe that the appetite is by no means a safe guide to the selection of foods. In discussing the effects of civilization on hygiene, one reviewer remarks that our tastes also have been perverted. The appetite is likely to be innocently misled by the delicacies which civilization has invented, as well as by the tricks of cooking, seasoning and preparing. For this reason, we cannot trust, as thoroughly as we should like, the ordinary leadings of taste. The solution of this problem of nutrition, like the solution of the housing problem, he adds, must be sought by retaining the advantageous food customs which we now find about us and substituting for the disadvantageous customs scientific ones.

There is a quantitative as well as a qualitative aspect to the subject. It involves the momentarily popular question of calories.[2] Assuming that a physiologically appropriate food mixture is available, will the energy intake be adequately controlled, in health, by the desire to eat? This problem has been submitted to careful experimental investigation in animals by Cowgill [3] of Yale University. For example, he has considered a group of dogs living under reasonably constant laboratory conditions, ingesting measured amounts of a standard artificial diet of known caloric content. If a second food mixture of greater energy content is fed, will these animals eat less of it than of the first? Will the food intakes of the two rations in grams be to each other inversely as their respective energy contents? Cowgill's extensive research has demonstrated an inherent tendency which he designates as "caloric adjustment." This refers to the condition that prevails in animals allowed to choose for themselves the amounts of a "complete" food to be eaten. It is characterized by voluntary maintenance of constant body weight and nutritive state. In other words, animals, when offered an abundance of an adequate ration, voluntarily adjust their food intake to their energy needs, as Rubner has suggested. Dogs ranging in weight from 3 to 15 Kg. were fed all they would eat of a "perfect" artificial diet and the amounts of food eaten were carefully measured. The first reaction to these experimental conditions in every case was complete ingestion of all food offered concomitant with an increase of body weight until a certain weight different for each animal was reached. Thereafter the food intake varied widely from day to day, but the body weight remained remarkably constant. When the energy intake under "caloric adjustment" conditions is considered in relation to body weight, it is found that, just as is the case with basal metabolism, the smaller the animal, the greater the total metabolism per unit of weight.

To what extent voluntary adjustments are similarly made to relative deficiencies other than those of an energy value is not equally clear. Cowgill believes that, under conditions of free choice and in the absence

1. Evvard, J. M.: Is the Appetite of Swine a Reliable Indication of Physiological Needs? Proc. Iowa Acad. Sc. **22**: 375, 1915.

2. Some of the current interest in this is reflected in Your Weight and How to Control It, edited by Morris Fishbein, New York, George H. Doran Company, 1927.

3. Cowgill, G. R.: The Energy Factor in Relation to Food Intake: Experiments on the Dog, Am. J. Physiol. **85**: 45 (May) 1928.

of pronounced psychic influences, deficiencies of any of the various dietary essentials usually operate sooner or later to initiate a search for the missing essential. However, according to Cowgill, under certain conditions of sufficiently limited choice, lack of certain essentials results in loss of the urge to eat, either quite early before any other symptoms are evident, or later, when the deficiency has resulted in making the animal definitely ill, as shown by eye diseases, scurvy, or some other manifestation. All such cases, he suggests, might be designated as true losses of appetite, in contrast to the apparent loss due simply to adjustment of the organism's energy intake to its energy needs.

Cowgill ventures, on the basis of his observations, to question the arbitrary character of some of the current pediatric recommendations, notably those directed against overfeeding. Undoubtedly, he remarks, the amount of food to be given a baby must be considered in relation to the well being of the alimentary tract and other conditions, but it is a bit difficult to understand why, in the absence of gastro-intestinal trouble or other imperative reasons, there should be any conscious restriction of food, and that the infant should not have all the nourishment it desires. The better part of wisdom for such pediatricians, Cowgill continues, would seem to be to place emphasis on giving all that the baby wishes, restricting the food only when definite indications for it appear. Furthermore, a distinction should be made between overfeeding with respect to the volume of fluid that the stomach can hold without regurgitation, and overfeeding with respect to the fundamental nutrients, such as protein and calories. If precautions are taken to insure that the food is "complete" and fed in appropriate concentrations, Cowgill believes that the healthy infant may be relied on to govern the amount of his food intake wisely according to the principle of caloric adjustment.

THE PREVENTION AND MODIFICATION OF MEASLES

Measles continues to be one of the ever present communicable diseases that baffle the effort of preventive medicine. The outlook for some mastery over its perennial incidence, however, is growing brighter. Ten years ago the possibility of immunizing susceptible children to measles with the blood serum of patients convalescent from the disease was first demonstrated. Two years ago Park and Freeman [1] announced that protection was secured in 85 per cent or more of susceptible persons exposed when serum was administered before the fifth day after exposure to measles. They reported, further, that in some cases the disease was modified when the serum of convalescent patients was given as late as the seventh day. The passive immunity conferred by the serum of convalescent patients is said to protect against infection for from two to four weeks. When the disease actually occurs after the use of human serum, it may be modified and a lasting immunity is secured.

The limitations of the supply of human convalescent serum have naturally directed attention to the possibilities of producing a comparable product from suitably immunized animals. The preparation has been attempted by the use of the diplococcus isolated from patients with measles by Tunnicliff of the John McCormick Institute for Infectious Diseases in Chicago. Results have been reported from the use of such an antimeasles serum developed in horses; [2] but the production of immune goat serum [3] seems even more promising. Hoyne and Peacock [4] of the Children's Memorial Hospital, Chicago, have recently given a favorable report on immune goat serum, covering a considerable number of children. Forty-three with a negative history for measles received immune goat serum within four days of exposure to measles and did not contract the disease. When the serum was administered five or more days after exposure, the disease was contracted but its course appeared to be modified. Few complications, such as otitis media, ensued, in contrast with the conditions prevailing in untreated children exposed under comparable environments.

Gradually increasing statistics of this sort are naturally gratifying. One cannot overlook the fact, however, that they refer to a protection that is only transient. The recipient of serum may be subject to an attack of measles within a few months. Active immunization of the human species with a toxin prepared from the causative organism of measles remains to be successfully accomplished. The analogies with other microbic diseases nurse the hope of ultimate success. Meanwhile the attention of public health officials is centered on other procedures. The special committee [5] appointed by the Institute of Medicine of Chicago to make a survey of the communicable disease situation in that city has concluded that as a general practice it is doubtful whether the immunization of all children exposed to measles is desirable. The committee takes the view that the susceptibility to measles is so universal that temporary immunity merely postpones the date of the attack. The committee concludes that the most successful method of reducing the mortality from measles has been to postpone the age of attack until after the age of 3 years, or at times when children are already weakened from some other infection; and, in accomplishing this end, convalescent serum or a dependable antitoxin is of great value.

1. Park, W. H., and Freeman, R. G., Jr.: Prophylactic Use of Measles Convalescent Serum, J. A. M. A. **87**: 556 (Aug. 21) 1926.

2. Tunnicliff, Ruth; and White, Benjamin: An Antimeasles Diplococcus Serum, Boston M. & S. J. **197**: 272 (Aug. 18) 1927.

3. Tunnicliff, Ruth; and Hayne, A. L.: The Prevention of Measles by Immune Goat Serum, J. A. M. A. **87**: 2139 (Dec. 25) 1926.

4. Hoyne, A. L., and Peacock, Silber: Prevention and Modification of Measles with Antimeasles Diplococcus Goat Serum, Am. J. Dis. Child. **35**: 1021 (June) 1928.

5. Survey of the Communicable Disease Situation in Chicago, Progress in Pediatrics, Am. J. Dis. Child. **35**: 1048 (June) 1928.

THE ENERGY METABOLISM OF SPECIAL EXERCISES

An intimate relation exists between the activity of the heart and muscular exertion. An adequate supply of oxygen is necessary for the reparative processes of muscle that follow contraction; and for the suitable distribution of the respiratory element the circulatory mechanism is brought into play. Accordingly, augmented work calls as a rule for increased function of the heart. Even at bodily rest the left heart does a minimal daily work equivalent to lifting the person through a vertical distance of more than 500 feet. With a uniform output of blood, the work done by the heart varies in proportion to the pressure against which the blood must be pumped. Therefore, in chronic high arterial pressure the heart is forced to do more work to circulate the blood than when the pressure is normal. As Haggard [1] has recently estimated, during exercise the volume of blood pumped may be three or more times as great as in the resting state and the blood pressure may rise 50 per cent or more. The work of the heart may thus be increased fivefold.

Such considerations make clearer why the physician is so often seriously concerned with the problem of muscular exertion in patients in whom the cardiac functions need cautious treatment. It has become quite customary to prescribe the forms or duration of muscular exercise for such persons. Functional tests are devised, such as observations of the rate of return of the heart beat to normal after a definite exertion. Stair climbing is one of the procedures sometimes employed to secure the records.

It would admittedly be helpful if exercise could be "standardized" in some more exact manner. Benedict and Parmenter [2] have essayed to do this in terms of the energy metabolism involved in going up and down stairs. According to their tests it may be considered for practical purposes that the average person expends the same amount of energy in walking up one average flight of steps (fifteen steps, each 20 cm. high) as he does in walking on a level fifteen times the distance represented by the vertical height of such a staircase, or as he does in descending three such flights of steps.

These comparisons may be helpful to the physician in prescribing exercise for patients. If he desires a more precise measure, actual determinations are now available. The average staircase in the ordinary house has fifteen steps in each flight, representing a vertical distance of about 3 meters. It requires energy equivalent to somewhat more than 2,000 Gm. (small) calories to raise an average person of 60 Kg. (or 132 pounds including clothing) up such a flight. The energy of descent is about one third of this. Such data explain the tremendously augmented labor involved in stair climbing or comparable exercises in which there is a deviation from the horizontal plane of progression. Bearing in mind that an average adult will expend about 46 calories (0.77 Gm. calory per kilogram of body weight) in walking one horizontal meter, the physician is thus assisted in prescribing definite amounts of exercise, such as either the considerable amounts necessary in reduction cures or the more subtly graduated work advisable in cases of heart disease.

1. Haggard, H. W.: The Science of Health and Disease, New York, Harper & Brothers, 1927.
2. Benedict, F. G., and Parmenter, Hazeltene S.: The Energy Metabolism of Women While Ascending or Descending Stairs, Am. J. Physiol. 84: 675 (April) 1928.

Current Comment

FACTORS IN THE DECAY OF TEETH

The decay of the teeth, particularly in the adolescent period when growth is vigorous and health may be expected to abound in every detail of bodily function, presents an important problem. Modern oral hygiene with its complement of dentifrices and tooth brushes, promoted by a lively propaganda on the part of the makers of such devices, has tended to follow the slogan that "a clean tooth never decays." Other factors of possible etiologic significance for the decay of the teeth are also receiving attention. The teeth are part of a skeletal system that is susceptible to nutritional influences. The demonstrations of the dependence of the bones on proper nutrition for their normal development and maintenance have forced attention on the possible rôle of dietary factors in such manifestations as dental caries. Probably various influences are at work; but the collection of evidence has necessarily been slow, and the solution is not yet in sight. Champions of the varied theories can usually marshal suggestive indications in favor of their preferred beliefs. The correlations of bodily conditions with particular dietary regimens are difficult, especially when the investigations are conducted by the questionnaire method rather than by direct experiment. This may help to explain the somewhat surprising observations recently reported by Kappes [1] during an inspection of the school children of Rochester, Minn., where a high incidence of dental caries is found. In the age range from 5 to 13 years, two groups were contrasted: the first included children whose teeth were free from caries and had required little or no dental work; the second included those whose teeth showed caries involving half or more of the teeth. Children whose teeth showed ridges and defective enamel recognized as due to definite nutritional disturbance were not considered. Detailed inquiries were made regarding maternal conditions during pregnancy, general health factors, past illnesses, environmental features, and particularly the details of the daily diet; that is, the food habits of the individual. The investigator reports that the difference in the data obtained for the two groups is not as striking as one would expect. The only feature that seems to be of definite etiologic significance in preventing decay is a diet composed largely of fruits and vegetables. Heredity, infectious diseases and the care of the teeth, Kappes concludes, appear to be of little, if any, significance.

1. Kappes, L. O.: Factors in the Decay of Teeth, Am. J. Dis. Child. 36: 268 (Aug.) 1928.

THE UNDERWEIGHT CHILD

Undernourishment is a particularly menacing feature in relation to childhood because of the large numbers of individuals that seem to be involved, especially in certain parts of the world. As with any other deviation from the normal it is disconcerting, but notably so if it occurs at a period when maintenance of weight is not an index of welfare as it may be during adult age. Gain and growth are striking characteristics of the young. Undernourishment may be secondary to a variety of pathologic conditions which make an otherwise adequate dietary ineffective. However, this is by no means the universal situation in the cases that commonly obtrude themselves on our notice. A recent study of underweight children by Wang, Hawks and Hays [1] at the Nelson Morris Institute for Medical Research in Chicago indicates that the ability of such young persons to absorb and store nitrogen is fully equal to or greater than that of the usual "normal" child. Undernutrition therefore does not necessarily impair the alimentary functions, for the average absorption commonly exceeds 90 per cent of the intake. The fact that the nitrogen retention increases with the degree of underweight, as the experiments clearly show, indicates to the Chicago investigators that as the child gains in weight he is building muscular tissue as well as storing fat. Evidently the protein requirement of underweight children may be greater than that of the "normal" individual of the same age. Therefore, Wang and her co-workers conclude, in computing diets for underweight children, the protein as well as the caloric intake should be computed according to the standard, rather than the actual, weight of the child in question.

DISTRIBUTION OF ARSENICALS IN THE BODY

The varied distribution of arsenic in the organs and tissues of the body, depending on the nature of the arsenical compound administered as well as on its path of entry, has been known to toxicologists since the days when the element became a subject of quantitative estimation in medicolegal practice. The interest that arsenic has aroused in modern syphilology is beginning to develop anew some consideration of the migration of the element and its various compounds with reference to the possible explanation of the variable symptoms to which they may give rise. Arsenical dermatoses have long been known to follow the use of certain familiar arsenical drugs. By employment of microchemical methods, Osborne [2] of the University of Buffalo, for example, has demonstrated that, after administration of such products as Fowler's solution (solution of potassium arsenite) or Donovan's solution (solution of arsenous and mercuric iodide), arsenic becomes localized in the epidermis, subpapillary layer and other ectodermal tissues, such as the sweat and sebaceous glands and their ducts, and the hair follicles. On the other hand, keratoses and pigmentation appear to be an extreme rarity following the administration of arsphenamines. These contain trivalent arsenic, in contrast to the pentavalent form in solutions of arsenites and cacodylates. A new study by Osborne [3] has demonstrated a well defined difference in localization of the arsenic following introduction of certain trivalent and pentavalent arsenicals. He believes that this may explain many of the clinical observations regarding these drugs both as to the pathologic processes that they produce and as to their therapeutic action. Arsenic in trivalent compounds has a special affinity for the vascular structures, such as the small arterioles and capillaries below the papillae of the cutaneous tissues. The pentavalent arsenicals seem to be directed toward the ectodermal structures. Hence they more readily produce pigmentation, keratoses, mild dermatitis, wrist drop and optic atrophy, whereas the trivalent products produce severe dermatitis, hemorrhagic encephalitis and purpura.

1. Wang, Chi Che; Hawks, Jean E., and Hays, Bertha B.: Metabolism of Undernourished Children: V. Protein Metabolism, Am. J. Dis. Child. **25**: 968 (June) 1928.
2. Osborne, E. D.: Microchemical Studies of Arsenic in Arsenical Pigmentation and Keratoses, Arch. Dermat. & Syph. **12**: 773 (Dec.) 1925.
3. Osborne, E. D.: Microchemical Studies of Arsenic in Arsenical Dermatitis, Arch. Dermat. & Syph. **18**: 37 (July) 1928.

Association News

ABSTRACT OF MINUTES OF MEETING OF THE BOARD OF TRUSTEES, HELD IN CHICAGO, SEPT. 7, 1928

A meeting of the Board of Trustees of the American Medical Association was held in Chicago, Friday, Sept. 7, 1928.

DISCONTINUATION OF SPANISH EDITION

It has been deemed advisable to discontinue the publication of the Spanish Edition of THE JOURNAL at the end of the current year.

SECTION TRANSACTIONS

Because of the small number of copies of the transactions of some of the sections ordered and the expense connected with the publication of these volumes, which represent more or less duplication of material available in THE JOURNAL, only the transactions of the following sections will be published, containing the proceedings of the meetings held in Minneapolis in June, 1928: Practice of Medicine; Surgery, General and Abdominal; Obstetrics, Gynecology and Abdominal Surgery; Ophthalmology; Laryngology, Otology and Rhinology; Diseases of Children; Preventive and Industrial Medicine and Public Health; Urology, and Gastro-Enterology and Proctology.

HARVEY FILM

The purchase of the film depicting Sir William Harvey's experiments on the circulation of the blood has been authorized. This film will be sent on application to state and county societies, to be shown at their meetings.

DR. COBLENTZ TO SUCCEED DR. COMPTON ON THE COUNCIL ON PHYSICAL THERAPY

W. W. Coblentz, Ph.D., Washington, D. C., has been elected to serve on the Council on Physical Therapy, to fill the vacancy caused by the resignation of Dr. A. H. Compton, and has accepted appointment.

RECOGNITION FOR DR. LAZEAR AND DR. CARROLL

The Board expressed its willingness to lend its whole-hearted support in forwarding any legislation that may be proposed to recognize properly the services of Drs. Lazear and Carroll to scientific medicine.

THIRD PUBLIC HEALTH CONFERENCE

Provisions will be made for the holding of a third public health conference at a suitable date.

CONTINUATION OF COMMITTEES

The Committee to Cooperate with the Commissioner of Internal Revenue and the Secretary of the Treasury in an effort

to bring about a revision of the objectionable features of the Volstead Act and the Committee on Trachoma Among the Indians were continued.

COMMITTEE ON VISUAL AND MOTION PICTURE EDUCATION

Drs. George Whipple, Rochester, N. Y. (chairman); Carl Davis, Milwaukee, and C. P. Emerson, Indianapolis, were elected to serve on a Committee on Visual Motion Picture Education.

COMMITTEE ON PHYSICIANS' HOME AND INDIGENT PHYSICIANS

Drs. J. Norman Henry (chairman), Arthur W. Booth, Charles E. Mongan, A. E. Bulson, Jr., and M. M. Cullom were elected to constitute a Committee on Physicians' Home and Indigent Physicians.

CHANGE IN TITLE OF OFFICERS OF BUREAUS

A change in the title of the officers of all bureaus at headquarters was authorized. These officers will in the future be known as "directors," instead of as "executive secretaries."

PUBLICATION OF ARCHIVES OF OPHTHALMOLOGY

The Board authorized the publication, beginning January, 1929, of an Archives of Ophthalmology, and elected as the editorial board Drs. Arnold Knapp, New York; George Derby, Boston; Francis Heed Adler, Philadelphia; Harold Gifford, Omaha; John Herbert Waite, Boston, and William Zentmayer, Philadelphia. The periodical will be a continuation of the present *Archives of Ophthalmology*, which was founded in 1869 by Herman Knapp.

SCIENTIFIC EXHIBIT

An appropriation was made for the Committee on Scientific Exhibit, and the decision as to whether or not to have a motion picture program at the 1929 session of the Association was left to the judgment of that committee.

MISCELLANEOUS BUSINESS

Reports of the General Manager and of other officers were received, and other routine business was transacted.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Society News.—The Arizona Public Health Association was organized in April at Tucson under the auspices of the state board of health; Dr. Raphael B. Durfee, Bisbee, was elected president for the ensuing year.

CALIFORNIA

Electrotherapist Berg Sentenced for Murder.—Arthur O. Berg, Los Angeles, was sentenced to the penitentiary, August 6, for from five years to life, having been found guilty of second degree murder in the alleged performance of a criminal abortion on a high school girl. According to the state board of medical examiners, Berg claims to be a licensed chiropractor, but his certificate was not on record in Los Angeles County. A diploma in his office indicated that he graduated from the Portland College of Electro Therapeutics, the president of which is one E. B. McDonald who, in 1927, was reported to be exploiting in Oregon a so-called preventive for venereal disease under the name "588," and to be operating under the firm name of the Medical Research Laboratories, Inc., in Portland.

GEORGIA

Society News.—A total of about 923 school teachers took the course of instruction this summer in health education given at the summer normal schools of Georgia under the auspices of the state board of health, the state department of education and the Georgia Tuberculosis Association.——Dr. Frank C. Story has taken up his duties as health officer of Wayne County with headquarters at Jesup.——At the September 6 meeting of the Fulton County Medical Society, Atlanta, Dr. Grady E. Clay read a paper on "Suture Filtration Operation for Glaucoma Simplex," and Dr. Charles E. Rushin on "Treatment of Varicose Veins with Sclerosing Solution." At the September 20 meeting of the society, Dr. Thomas C. Davison will read a paper on "Postoperative Hypothyroidism," illustrated by lantern slides and patients.

ILLINOIS

Hospital News.—The Morris Hospital, Morris, recently laid the cornerstone of its new building. The hospital was founded in 1906 by a group of physicians.

Personal.—Dr. Andrew M. Harvey, LaGrange, has been elected president of the Knox College Alumni Association for the ensuing year.——Dr. Arthur J. Rissinger has been appointed health officer of the village of Lake Bluff.

INDIANA

Hospital News.—The Lutheran Hospital, Fort Wayne, dedicated a new $300,000 annex, July 29.——The James Whitcomb Riley Hospital for Children, Indianapolis, has opened the new Ball Nurses' Home.

Personal.—Dr. Frederick E. Jackson has been elected president of the board of health of Indianapolis, succeeding Dr. Everett E. Padgett; Dr. Henry S. Leonard, elected vice president; Dr. Herman G. Morgan, reelected secretary, and Dr. William A. Doeppers, reelected superintendent of the city hospital.——Dr. Clint C. Sourwine has resigned as secretary of the board of health of the city of Brazil.——Dr. Milton E. Leckrone, formerly of Silver Lake, has taken up his duties on the staff of the Woodlawn Hospital, Rochester, Ind.

IOWA

Society News.—Dr. John D. Cantwell, Davenport, was elected president for the ensuing year of the Iowa and Illinois Central District Medical Association at its annual meeting, August 29. The speakers at this meeting were Drs. William H. Holmes, Chicago, on "Clinical Diagnosis of Diseases of the Spinal Cord," and Loyal Davis, Chicago, on "Surgery of the Spine and Cord."

KENTUCKY

Report of Council on Law Violation.—The council of the Kentucky State Medical Association reported to the house of delegates at the Richmond meeting with respect to the narcotic and prohibition laws as follows:

Again this year a considerable number of physicians have been convicted in the state or federal courts for violation of the narcotic or prohibition laws. Acting under court instructions, the council has, or will, when their pentitentiary terms have expired, prefer charges against each of them with the view of revocation of their certificates to practice medicine in Kentucky. The council finds that the administration of these laws, which are approved by a vast majority of the physicians of Kentucky, has been made unnecessarily irksome to the competent, honest-self-respecting members of the medical profession by their violation by the very small minority who have continued to ignore their plain purposes and provisions. Regardless of individual opinion as to the wisdom of such a law, it is now well known by every physician in Kentucky, and in every possible way the public should be taught, that, under federal law, narcotic habitues are not considered as having a disease and that they cannot be treated by providing narcotics under any circumstances. It is equally plain that alcohol in any form can only be prescribed legally for patients who have actually been examined by, and who are under the treatment of, the physician writing the prescription for a definite disease in which such alcoholic medication is indicated. It is with regret that the council notes the reports of the federal authorities that they are finding frequently prescriptions for alcoholic beverages signed by physicians who have not only not examined these patients, but they have not infrequently been issued in fictitious names, and that, in some instances, these prescriptions were filled for the physicians themselves. Such action is a breach of trust that is absolutely inexcusable, and any member of our profession who prostitutes the duty imposed upon him by law, of determining whether medicines containing alcohol shall be used in the treatment of disease, deserves no sympathy when he is indicted and imprisoned. The council desires to repeat again that the officials charged with the enforcement of these laws cannot relax their strict constructions of its provisions, which seem to most of us frequently unnecessarily harsh, until the people have been protected from the class of negligent or soft-headed and soft-hearted physicians who pander to this trade and practice in violation of the law.

MARYLAND

Personal.—Dr. Ko K. Chen, associate in pharmacology, Johns Hopkins University School of Medicine, Baltimore, was awarded a prize of $2,000 (Mexican) for his researches on ephedrine and other Chinese drugs by the China Foundation for the Promotion of Education and Culture. During the recent Congress of the International Anesthesia Research Society in Madison and Minneapolis, Dr. Chen's name, together with that of Prof. Walter J. Meek, Ph.D., Madison, Wis., was listed in the Scroll of Recognition for their "laboratory studies leading to the clinical use of ephedrine in occidental medicine, surgery and anesthesia."——Dr. Dean Lewis, Baltimore, has been made

a corresponding member of the Etranger de Société des Chirurgiens de Paris.——Dr. Charles H. Brooke, Brooklyn, has been appointed coroner of the southwestern district to succeed the late Dr. Thomas B. Horton.

Infantile Paralysis Report.—One new case of infantile paralysis was recently reported from Baltimore County, but no new cases from Baltimore City. The outbreak appears to be on a downward trend. Eighty-nine cases in all have been reported in Baltimore since the first of the year. Six of these cases resulted fatally, the last death having been reported, August 30. The total in the state numbered 117 during August. The public schools of Baltimore will not reopen until September 17. This decision was actuated by the Parent-Teacher Association expressing opposition to opening on September 5. Serious administrative difficulties in the delayed return of a large number of pupils would be encountered should the schools open on schedule, and after a two and a half hour debate, the Baltimore City School Board decided on postponement. The board, however, is convinced that there is no necessity for this postponement, and, if there were no other consideration than the public health involved, it feels that it would be its duty to open the schools as planned. Parents on the advice of their family physicians refused to allow the children to resume their classes on the fifth.

MASSACHUSETTS

Hospital News.—Mr. and Mrs. Charles D. Harrington, Southbridge, have contributed $150,000 toward the cost of a community hospital for that city which will be named Crestmere. The capacity will be fifty beds and the total cost will exceed $200,000. The plans for the hospital have been supplied by The Duke Foundation, Charlotte, N. C.

Personal.—A grandfather's clock was presented to Dr. Charles P. Wilinsky at a banquet recently on the occasion of his retirement from the Boston health department, after nineteen years' service, to become superintendent of the new Beth Israel Hospital. Dr. George H. Bigelow, state commissioner of health, was toastmaster and the presentation speech was made by a former mayor of Boston.——Dr. Irving J. Walker has resigned as a member of the state board of registration in medicine to accept a position on the faculty of Harvard University Medical School.——The home of Dr. Charles W. Hoyt, Hingham, was destroyed by fire in July.——Dr. Charles E. Hosmer, Billerica, who retired from practice about five years ago, celebrated his ninety-first birthday recently.——Dr. Roger I. Lee, professor of hygiene, Harvard Medical School, has been made chairman for the ensuing year of the committee on public health of the Boston Chamber of Commerce.——A marble bust of the late Dr. John Collins Warren is to be placed in the Warren Museum of Harvard University Medical School.

MICHIGAN

Sanitation of Swimming Pools.—During the last three months there have been, in all, thirty swimming pools in Detroit that have not shown *B. coli*, and of the others one pool showed the presence of *B. coli* in excess of 10 per hundred cubic centimeters only once in thirty examinations. Seventeen pools had an average median bacterial count of zero and did not show *B. coli*. The sanitary condition of the swimming pools of the city during the second quarter of the year showed no improvement over the previous quarter but was decidedly better, according to the city department of health, than in any quarter during the three previous years.

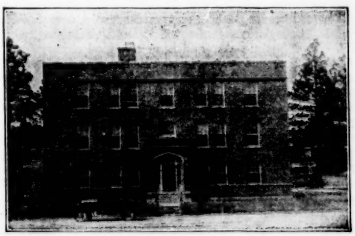
MINNESOTA

Hospital News.—Contracts have been let for the construction of a crippled children's hospital, a dispensary and a student health service unit at the University of Minnesota, Minneapolis. The dispensary and outpatient department will be a five story structure and the other units, four stories.

Society News.—The annual outing of the St. Louis County Medical Society was held at the Lake Esquagama Country Club, August 13; until evening, members with their families spent the time golfing, boating and playing bridge; a program of old fashioned dances and water sports occupied the evening. There were scientific addresses by Drs. Charles B. Wright, Minneapolis, James T. Christison, St. Paul, Edward A. Meyerding, St. Paul, and George A. Earl, St. Paul, all officials of the state medical association.——Dr. Manford O. Oppegard, Crookston, was elected president at the recent annual meeting of the Northern Minnesota Medical Association, Fergus Falls.

MONTANA

Laboratory at Hamilton for Study of Insect Borne Diseases.—The research work on Rocky Mountain spotted fever, which has been conducted by the Montana State Board of Entomology and the U. S. Public Health Service for several years in a laboratory made out of an abandoned schoolhouse, will now be conducted in a specially equipped brick and concrete three story building at Hamilton provided by the state, with a one story 88 foot wing for the care of stock laboratory animals. The building is planned generally for entomologic work. There is no basement and the construction avoids cracks and corners. There is an automatic oil burner, an incinerator for dead animals and waste, a laundry adapted for drying the numerous bags used to confine ticks on laboratory animals, a shop for making cages, a room for mixing poison grain for the destruction of rodents, three refrigerator rooms cooled by an ammonia machine in which are fifteen thermal cabinets, two general laboratories for chemical and bacteriologic studies, a special room for grinding ticks and the preparation of vaccine, and quarters, offices, and record and photographic rooms. The vaccine for the prevention of Rocky Mountain spotted fever, produced in this laboratory by Spencer and Parker from the bodies of infected ticks, has now been tried on about 4,000 persons with uniformly encouraging results. Other research on insect borne disease is being carried on. A new undertaking by which it is hoped to get rid of ticks in Montana is the introduction from abroad of tick parasites. The secretary of the state board of entomology, Robert A. Cooley, Bozeman,



states that during 1928 they hope to liberate 1,500,000 tick parasites. Spotted fever occurs in several Western states. While the number of cases in Montana last year was only thirty-six, a policy of fearless truth telling has been pursued, as this is believed the best way to overcome an unreasonable fear that some persons may have acquired from false impressions created by popular writers. The other members of the state board of entomology are Dr. W. F. Cogswell, Helena, secretary, state board of health, and W. J. Butler, state veterinary surgeon.

NEW HAMPSHIRE

Personal.—Dr. Norman B. Dresser, Berlin, has been appointed medical referee of Coos County to succeed Dr. Homer H. Marks for five years from June 29.

NEW JERSEY

Hospital News.—John S. McConnell has resigned as superintendent of the Newcomb Hospital, Vineland (THE JOURNAL, July 28, p. 253).

Personal.—Frederick L. Hoffman, LL.D., of the Prudential Life Insurance Company, Newark, on his recent return from a transcontinental air journey, stopped in the Navajo country to assist the bureau of Indian affairs with the census of the Indians.

NEW YORK

Largest U. S. Veterans' Hospital Dedicated.—The U. S. Veterans' Bureau Hospital, Northport, Long Island, which was dedicated, August 2, provides 1,000 beds for neuropsychiatric patients and comprises twenty-four fireproof buildings constructed at a cost of $3,800,000, including $193,000 for the 552 acres of land. This is the largest single project yet undertaken by the Veterans' Bureau. The buildings are in three groups, all but two being heated by steam. The treatment for the patients in these two buildings necessitated special arrangements for heating with hot air. Oil is used throughout for the heating plant. Water is supplied from artesian wells. Sewage is disposed of by modern methods. The wards have soundproof walls and an arrangement which does away with the

barred windows usually found in mental hospitals. There is a swimming pool for patients and a very large recreation room with a stage, scenery and moving picture machines. Religious services are held regularly as well as dances and other entertainment. The staff at present includes fifteen physicians. There are thirty-one graduate nurses assisted by 116 attendants. One building is a diagnostic center and infirmary, including various laboratories, a pharmacy, consulting rooms, medical libraries, a patients' library, an electrocardiograph department and a physical therapy center. The addition of a metal shop and the development of animal husbandry and an additional building for occupational therapy are contemplated.

New York City

Personal.—Dr. J. L. McCartney, who has been in China for several months settling the estate of his father, Dr. J. H. McCartney, has returned to this country as a fellow of the National Committee for Mental Hygiene, New York. Dr. McCartney formerly was at the St. Elizabeth's Hospital, Washington, D. C.

New York's Water Supply.—At the present rate of increase in population and in uses for water, the great supply now brought to New York chiefly from the northern mountains will be sufficient for about six years more, according to a writer in the New York *Times*, before it will be necessary to campaign against its waste and unnecessary use. Engineers are said to be planning now to utilize new sources. The development of New York's water supply dates back to 1830, when the first reservoir was built at Broadway and Thirteenth Street. About twelve years later another reservoir was built where the public library now stands and the old Croton aqueduct was opened. Previously water had been obtained chiefly from wells and cisterns and the 90 million gallons a day furnished by the Croton River was considered a great flood at that time. As the city grew, various lakes in the Croton Valley were added to the supply, Lake Kirk, Lake Gleneida and Lake Gilead being added in 1870, and one reservoir after another was added to hold the reserve, forming "lovely sheets of water that stretch for miles through the pleasant northern countryside," all emptying eventually into Croton Lake, which backs up for 20 miles above the Croton dam. Large as it is, the Croton system amounts to only about one fifth of the present total supply. Most of the other four fifths, it is said, comes from the Catskill Mountains. It slows down first in its journey to the city in the great lake of Ashokan, from which through 75 miles of tunnel it is carried to Kensico, and then under the Hudson River through solid granite at a depth of 1,100 feet. Before this system was built, seven small villages lay on the present site of Ashokan Lake. These people moved their homes, and even the dead, that this great lake might come into being. The Schoharie Reservoir, the newest link in the great chain, collects water from about 300 square miles of territory, from where it runs through 18 miles of the Shandaken tunnel and into the Esopus, then into Ashokan reservoir, "the most tremendous thing in the whole water system." From Kensico reservoir, which, some engineers say, is one of the great masonry structures of the world, 307 feet high and built of enormous blocks of granite, the water goes by aqueduct to Hill View in Yonkers where "great gates and gauges direct it to the city mains." Some of this water travels 137 miles, from Gilboa down through Ashokan, under the Hudson into Kensico, along Manhattan, under the Narrows, and down to Silver Lake Reservoir on Staten Island. New York's total water supply is said to equal 1 billion gallons a day. It is chlorinated three times before reaching the faucets.

OHIO

Health at Cincinnati.—Telegraphic reports to the U. S. Department of Commerce from seventy cities with a total population of about 31 million, for the week ending August 25, indicate that the highest mortality rate (20.6) was for Cincinnati, and that the mortality rate for the group of cities as a whole was 10.5. The mortality rate for Cincinnati for the corresponding week last year was 14.7, and for the group of cities, 9.8.

Society News.—The fourteenth annual meeting of the Association of Norfolk and Western Railway Surgeons will be held at the Hotel Cleveland, Cleveland, September 20-21. Among other features of the meeting will be a clinic by Dr. George W. Crile and his associates.——Drs. Joseph L. DeCourcy and Giles A. DeCourcy of Cincinnati addressed the Darke County Medical Society, Greenville, August 9, on "Dangers of State Medicine" and "Caesarian Section, Some of the Recent Modifications in Technic," respectively.——St. Elizabeth's Hospital, Dayton, recently held a two-day celebration of its fiftieth anniversary.——The Cincinnati Heart Council has been established and has an appropriation of $7,350 from the Community Chest for the first year's work and an additional $5,000 from the Amanda Bernheim Foundation. The president of the council is Dr. William Muhlberg; the vice president, Dr. Julian E. Benjamin, and the secretary, Dr. Irl C. Riggin.

Fifth District Meeting at Cleveland.—The annual meeting of the fifth district of the Ohio State Medical Association will be at Cleveland, September 21. Clinics will be held at the Lakeside Hospital at 2 p. m. under the direction of Dr. Marion A. Blankenhorn. At the dinner session at 6 p. m., there will be a discussion of organization problems led by Drs. William E. Hart, Elyria, and Isa C. Teed Cramton, Burton. The evening session will be held jointly with the Cleveland Academy of Medicine at the Medical Library, Euclid and Adelbert Road, where Dr. Theodore Miller, Cleveland, will speak on "Obstetric Emergencies," and Dr. Thomas S. Cullen, Baltimore, on "Uterine Hemorrhage." The president of the state medical association, Dr. Charles W. Stone, Cleveland, will speak. The general arrangements for the meeting are under the direction of the councilor of the fifth district, Dr. Clyde L. Cummer. Thus this meeting features gynecology and obstetrics. Last year the joint meeting was on surgical subjects and the previous year on medical topics.

OREGON

Society News.—Dr. Frank W. Lynch, professor of obstetrics and gynecology, University of California Medical School, San Francisco, addressed the Lane County Medical Society, Eugene, August 30, on "Cervical Cancer," illustrated.

PENNSYLVANIA

Society News.—Drs. Henry J. Sommer, Hollidaysburg, and S. Benjamin Meyers, Johnstown, addressed the Cambria County Medical Society, August 29, on "Malarial Treatment of Paresis."——Dr. Irving J. Spear, professor of neurology, University of Maryland School of Medicine, Baltimore, will address the Harrisburg Academy of Medicine, September 18, on "Neurologic Problems of the General Practitioner."——The physicians of Dauphin County were recently entertained at dinner at Cravers by the Dauphin County Pharmaceutical Association. Among the speakers were Dr. Wilmer Krusen, president of the Philadelphia College of Pharmacy and Science, and Wilbur B. Goodyear, president of the state pharmaceutic association.

Philadelphia

Hospital News.—The financial campaign of Mercy Hospital has closed with subscriptions nearly 50 per cent above the objective, which was $220,000. This will enable the hospital to build a nurses' home and training school.——The Pennsylvania Hospital, department of nervous and mental diseases, Forty-Sixth and Market streets, announces plans for a new $1,500,000 four story building which will be connected with the present men's building of the hospital. It will not affect the Pennsylvania Hospital building at Eighth and Spruce streets, nor change the plan for building a county hospital for nervous and mental diseases on a 600 acre tract at Ashley, Newton Square.——A building permit has been issued for the St. Luke's and Children's Homeopathic hospitals, a structure eleven stories high of stone and concrete, to be built on a site 92 by 160 feet. The estimated cost is about $1,000,000.

SOUTH DAKOTA

Spafford Hall Dedicated.—The physical education building of the Northern State Teachers College at Aberdeen was dedicated, July 10, and is now in use with the exception of the swimming pool. Rooms for physical examinations, corrective rooms and the pool are on the first floor, the auditorium-gymnasium, recitation rooms and faculty rooms are on the second, and the rooms equipped for special courses are on the third. The three balconies about the gymnasium seat about 500 persons. Dr. Charles H. Mayo, Rochester, Minn., gave the dedicatory address. Spafford Hall is named in honor of the late Dr. Frederick A. Spafford who practiced medicine in South Dakota for about thirty-eight years. He was a past president of the state medical association, and the secretary at the time of his death; he was for ten years president of the state board of regents; for fourteen years mayor of Flandreau; for twenty-seven years president of the school board, and for many years physician to the Indian school at Flandreau.

TENNESSEE

Health at Nashville.—Telegraphic reports to the U. S. Department of Commerce from sixty-nine cities with a total population of about 31 million, for the week ending August 18, indicate that the highest mortality rate (19.6) was for Nashville, while the mortality rate for the group of cities as a whole was 10.8. The mortality rate for Nashville for the corresponding week last year was 14, and for the group of cities, 10.

Society News.—The Montgomery County Medical Society had as its guests members of the Christian County (Ky.) Medical Society at its annual outing and picnic, August 16, at Dunbar Cave. The speakers were Drs. Willis C. Campbell and James B. McElroy, Memphis.——Drs. Ralph H. Monger addressed the July meeting of the Knox County Medical Society on "Intestinal Parasites Most Common in Knoxville"; Leon L. Sheddan, "Fibroids Complicating Pregnancy"; Horace E. Brown, "Symptoms and Treatment of Pelvic Tumors," and George I. Baker, "Management of Diarrhea in Infancy and Childhood."——Dr. Harrison H. Shoulders, Nashville, secretary, state medical society, addressed the Robertson County Medical Society, Adams, July 17, on "Diagnosis of Acute Abdominal Conditions," and Dr. Oval N. Bryan, Nashville, on "Heart Conditions"; the society was entertained at the home of Dr. and Mrs. James R. Connell.——The Williamson County Medical Society was addressed, July 17, by Dr. David Bruce B. P'Pool, Nashville, on "Sinus and Nasal Infection."——Dr. Thomas Earl Goyer, Jackson, addressed the Madison County Medical Society, July 3, on surgical diathermy in eye, ear, nose and throat work, and Dr. Stanford M. Herron, Jackson, on brain abscess.——Among others, Dr. Thomas A. McAmis, Lawrenceburg, addressed the Hardin, Lawrence, Lewis, Perry and Wayne County Medical Society, July 31, on "Basal Metabolism in Health and Disease."

WISCONSIN

Society News.—The Oneida-Forest-Vilas Counties Medical Society, Rhinelander, was addressed, August 10, by Drs. Wayne A. Rupe, Madison, on "Acidosis; Anhydremia in Infants"; Jerome E. Cook, St. Louis, "Diagnosis of Gallbladder Disease"; Edward L. Jenkinson, Chicago, "X-Ray Treatment of the Thyroid," and Elmer Sevringhaus, Madison, "Foods and How to Use Them."——Among others, Dr. John J. McGovern, Milwaukee, president, state medical society, addressed the Fourth Councilor District Medical Society, August 6, at Lancaster, on "Medical Organization"; Dr. L. Rock Sleyster, Wauwatosa, on "Psychoneuroses and Mental Disorders"; Cornelius A. Harper, Madison, "Status of Antitoxin and Vaccine to Public Health"; Dr. Raymond C. Blankinship, Madison, "Constipation," and Dr. Albert R. Tormey, Madison, "Diagnosis and Treatment of Infection of the Hand."

GENERAL

International Congress on Entomology.—At the Fourth International Congress of Entomology held at Cornell University, Ithaca, N. Y., August 12-18, the section on medical and veterinary entomology was addressed, among others, by M. E. MacGregor, London, England, on "Factors Governing Growth and Development of Mosquito Larvae"; Dr. Edward Francis, Washington, D. C., "Arthropods in the Transmission of Tularemia"; R. R. Parker, Hamilton, Mont., U. S. Public Health Service, "Rocky Mountain Spotted Fever"; W. V. King, U. S. Bureau of Entomology, "Development of Malaria Parasites in the Mosquito Host," and E. Martini, Hamburg, Germany.

Society News.—The forty-fourth annual convention of the Association of Official Agricultural Chemists will be at the Raleigh Hotel, Washington, D. C., October 29-31. The honorary president is Dr. Harvey W. Wiley, and the president Oswald Schreiner, Ph.D.——This is the centennial year of the discovery of the synthesis of urea by Friedrich Wohler, from which time the history of synthetic chemistry dates. The American Chemical Society will celebrate the centenary by a special program at its Boston meeting.——The Gorgas Memorial Institute will use for a period of from three to five years a building recently erected by the Republic of Panama for a hall of medicine in the new Panama University, and the institute will start experiments with certain plants and insects which will make difficult the development of malaria bearing mosquitos.

Discharge of Cured Lepers.—The medical officer in charge of the National Leprosarium at Carville, La., has been authorized by the surgeon general of the U. S. Public Health Service to release eight lepers who have been under treatment at that institution during a period averaging from two to seven years. These lepers are apparently cured. The National Leprosarium at Carville has been operated by the U. S. Public Health Service for a period of seven years. During that time, thirty-seven persons have been released as no longer dangerous to the public health. Of these thirty-seven, only one person has suffered a relapse and returned to the institution for further treatment. It has been the custom of the officials at the Carville institution to have physical and bacteriologic examinations made each six months of all discharged lepers. At the present time there are 403 lepers in the institution.

Hundreds of Automobile Deaths in Four Weeks.—In seventy-seven large cities of the United States during the four weeks ending August 11, there were 588 deaths from automobile accidents as compared with 507 during the similar period last year. Since May, 1925, the lowest number of deaths in the four week periods in these seventy-seven cities was 346 for the period ending March 27, 1926, and the highest number of deaths was 686 for the four week period ending Nov. 5, 1927. The total number of deaths in automobile accidents for the fifty-two weeks ending Aug. 11, 1928, in these seventy-seven cities was 7,223, as compared with a total of 6,996 in the fifty-two weeks ending Aug. 13, 1927. Although the total is indeed large, there were five cities in this group which did not report any automobile deaths for the last four weeks, and there were seven cities in this group which did not report any automobile deaths for the corresponding period of last year.

Prevention of Blindness.—In summing up progress made in twenty years in the reduction of eye injuries and the elimination of eye diseases, the National Society for the Prevention of Blindness considers that the greatest achievement has been the reduction of ophthalmia neonatorum, which has decreased 64 per cent among persons admitted to the schools for the blind. In many states, laws have been adopted requiring the instillation of prophylactic drops in the eyes of babies at birth. The National Society for the Prevention of Blindness carries on educational work, arranges preschool clinics and demonstrations of eye tests, and cooperates in the establishment of sight-saving classes. It first advocated sight-saving classes in 1911; now they have been established in eighty cities. By the use of large-type books, movable desks, ideal lighting and special teaching methods, these classes help children with little vision to secure the same kind of education that children with normal vision receive. The society believes that instead of the 292 sight-saving classes in this country there should be at least 5,000. It is estimated that about 15 per cent of the 100,000 blind persons in this country lost their sight through industrial occupations.

Report on Abuse of Dispensary Service.—The outpatient department of the American Hospital Association gave a report on a detailed study of the abuse of dispensaries at its recent San Francisco meeting. The study covered nearly 29,000 patients in different cities between 1910 and 1923. According to *Hospital Management*, the statistics included a study of 745 patients by the New York County Medical Society, of whom seventy-three apparently were able to pay for private service. It is said that in almost every one of the seventy-three patients, there seemed to be a reasonable doubt as to how the case should be regarded. At the Boston dispensary, 1,414 patients were studied; 11.6 per cent of them were questionable, but further study reduced this to 1⅛ per cent. One thousand patients were studied at the Presbyterian Hospital, Philadelphia, and 3.5 per cent of them were questionable. It is said that 21,228 patients were studied at the Cornell Clinic, New York, and that less than 2 per cent were able to pay. At the Central Free Dispensary, Chicago, 500 patients were studied and less than 1 per cent of them should have been refused. Five hundred patients were studied at the Springfield Hospital, Springfield, Mass., and less than 5 per cent were said to have been "apparently unsuitable."

CANADA

Hospital News.—The Highland View Hospital, Amherst, Nova Scotia, was destroyed by fire recently, those in residence losing all of their effects and several physicians their instruments, but no lives were lost. The insurance carried was $100,000. A new building will be constructed.

Personal.—Dr. William L. Holman has been appointed professor of bacteriology and associate director of applied bacteriology on the faculty of medicine of the University of Toronto; Dr. William L. Robinson, associate professor and associate director of applied pathology, and Dr. Wallace A. Scott, assistant professor of obstetrics and gynecology.——Dr. William Harvey Smith, Winnipeg, has been elected president of the British Medical Association for the meeting to be held in Winnipeg in 1930.

Milk Embargo Lifted.—The bureau of chemistry of the U. S. Department of Agriculture has lifted the embargo placed against the importation of milk and milk products from Montreal, Canada, into the United States. The embargo was placed on the advice of the U. S. Public Health Service that the serious menace of typhoid existing in Montreal and its vicinity early in the year 1927 rendered milk and milk products from that section a menace to the health of the people of the United States. The original embargo covered all points within 200 miles of the city of Montreal. As health conditions improved in the territory surrounding that city, the embargoed territory was reduced, and on May 7, 1927, was modified so as to include only the city of Montreal and its immediate vicinity. Aug. 31, 1928, the U. S. Public Health Service notified the food, drug and insecticide administration of the department of agriculture that the public health service had completed a survey of sanitary conditions in Montreal and recommended that in view of the increased force engaged in the sanitary control of milk in Montreal and of the reduced prevalence of typhoid, it appeared proper to cancel the embargo.

Society News.—Dr. Ernest A. McQuade, Trenton, has been elected president of the Ontario Medical Association for this year.——Dr. Ambrose B. Moffat, who was the bacteriologist in the Toronto Health Department for several years, has been appointed director of the public health laboratories.——Dr. Andrew Hunter, who is now at the Dominion Biological Station near Nanaimo, addressed the Vancouver Medical Association in August on "Preventive Nutrition." At a special meeting, July 7, Dr. Harold B. Cushing, Montreal, spoke on the use and danger of antitoxic serums, and Dr. Alan W. Canfield, Toronto, on feeding of the normal infant. The association was addressed, September 5, by Dr. Alfred T. Bazin, Montreal, on "The Gallbladder"; by Dr. Alvah H. Gordon, Montreal, on "Digitalis Therapy," and by Dr. Gordon A. Bates, Toronto, on "Diagnosis and Treatment of Venereal Disease." More than 250 physicians attended the opening of the eighth annual summer school of the association.——Dr. Wallace A. Wilson, Vancouver, was elected president of the British Columbia Medical Association for the ensuing year.——The Canadian Public Health Association will hold its seventeenth annual meeting at Winnipeg, October 11-13.

LATIN AMERICA

Society News.—Dr. John D. Long, U. S. Public Health Service, has been relieved as chief quarantine officer of the Panama Canal and will report to the surgeon general for conference prior to a tour of Latin American countries as a representative of the Pan American Sanitary Bureau.——Dr. Guillermo Aranda was appointed inspector general of sanitation in Venezuela, effective July 1.

Medical Meeting in Haiti.—The second Haitian Medical Congress was held at Port-au-Prince in May. Cases from the General Hospital were presented, and there was a parasitologic demonstration, motion pictures of public hygiene work and visits to the public sanitary improvements being made in the city. The congress was divided into sections on tropical fevers, cardiovascular diseases, treponematosis, surgery and the specialties. The president of Haiti made the address of welcome.

Sanitation in Paraguay.—The National Department of Hygiene and Public Welfare of Paraguay established a new unit at Itá in February under the direction of Dr. José V. Insfrán. This office will establish a dispensary, conduct laboratory studies, check the results of a sanitary campaign made in 1924, study the health of school children, conduct vaccinations, gather vital statistics and prepare maps of the distribution of tuberculosis, goiter, venereal disease, malaria, leprosy and other diseases in that district.

Open Air Schools of Montevideo.—The capacity of the three open-air schools of Montevideo was doubled last year to a grand total of 600 pupils, each of whom stays on an average of six months, returning to the ordinary public schools usually in a much improved physical condition. The latest addition to these schools (number 3) is surrounded by an expanse of about 17 acres, beautified by trees and many varieties of plants. An article in the *Bulletin of the Pan-American Union* indicates that these schools have justified their existence by returning children to the regular public schools in a robust and joyful condition. The open-air school is not a sanatorium. It is a scholastic institution where the pupils live and pursue their studies largely outdoors, and careful records are kept of their physical condition as well as the usual school records. The authorities make an effort to provide proper nutrition and the meals are approved in advance by the medical service. Reliance is placed almost entirely on fresh air and nutritious food to transform the physical condition of the pupils, but recourse may be had in some cases to heliotherapy. During 1926, there were 377 pupils in the open-air schools between 6 and 12 years of age.

FOREIGN

Personal.—Geheimrat Prof. Dr. Friedrich von Müller, director of the II. Medizinische Klinik, University of Munich, will celebrate his seventieth birthday, September 17.

Society News.—The recently organized College of Surgeons of Australasia proposes to initiate a new journal within a short time. The organization held its first annual meeting in March. There seems to have been considerable criticism of the methods adopted by the founders of the college, according to the *Medical Journal of Australia.*

Cholera and Plague in India.—The Health Section of the League of Nations reports that about 5,000 deaths in India were attributed to cholera during the second week of April; the number reported for the week ending June 9 was slightly above 5,000. Cholera appeared for the first time this year west of India; the first case was reported on the island of Henjam in the Strait of Ormuz, and a few days later the disease appeared at Jask in Persia. Plague in India caused 5,913 deaths during the week ending April 14. This number had decreased to 2,835 for the week ending May 5 and to 633 for the week ending May 26.

King Edward's Hospital Fund.—During the thirty-one years of the existence of this fund, it has distributed more than £5,800,000 as grants to various hospitals located within 11 miles of St. Paul's, London. These hospitals number now 141 and the number of outpatients treated by them in a year is about 1,619,000. The fund was called the Prince of Wales' Hospital Fund for London, but was renamed after the prince became king in 1902. It does not assist in the foundation of hospitals or entertain applications from institutions which have been in existence for less than three years, or from dispensaries or other institutions not possessing beds for patients, or for the treatment of incurables or mental cases, and institutions applying for grants must publish their accounts in accordance with the uniform system of hospital accounts. Every hospital eligible for a grant from the fund is inspected annually by two visitors specially appointed in each case, one a medical man, the other a layman. The most urgent need of the fund now is a permanent increase in its annual income.

British Association Considers the Noise Problem.—At the recent annual meeting of the British Medical Association at Cardiff, a resolution was introduced to the effect that, in the interest of public health, the association support any measure which may be taken to amend existing legislation so as to give greater power to local authorities to suppress unnecessary and disturbing noise; and that any noise from 11 p. m. to 6 a. m. which is susceptible of being prevented or mitigated and which is dangerous or injurious to health shall be a nuisance within the meaning of the public health acts. Dr. John Stevens, Edinburgh, who sponsored the resolution, said "It is the extension of innumerable noises, mostly discordant and more or less disagreeable, far into and even through the night, which is a present and increasing menace to the public health. Among them are the barking of dogs, the clatter of milk cans, motor vehicles, and, perhaps worst of all, motorcycles." Dr. Stevens estimated that such noises impair the working efficiency of the country to the extent of $5,000,000 a week, that they affect the central nervous system and cause functional disturbances of the body.

New British Officers—Prizes Awarded.—At the annual meeting of the British Medical Association, Cardiff, July 24, Sir Ewen J. Maclean became president for 1928-1929; Dr. Arthur H. Burgess, professor of clinical surgery, University of Manchester, was made president-elect; Sir Robert E. Bolam and Dr. Robert G. Hogarth were elected vice presidents in recognition of their services as former chairman of the council and president of the association, respectively. The delegates from the American Medical Association to this meeting were Drs. George H. Simmons, editor emeritus of THE JOURNAL, Leslie L. Bigelow, Columbus, Ohio, and Ross H. Skillern, Philadelphia. The prizes of the British Medical Association were awarded as follows: the Sir Charles Hastings Prize to Dr. Ambrose W. Owen, Aberdare, for his clinical study on "Some Renal Conditions Met With in General Practice"; the Stewart Prize to Sir Malcolm Watson for his scientific administrative work that has freed large tracts of tropical Malaya from malaria, and the Katherine Bishop Harman Prize to Ronald Hare of London for his essay on

"Researches on Septicemia, with Special Reference to Puerperal Septicemia."

Annual Tuberculosis Conference.—The fourteenth annual Conference of the National Association for the Prevention of Tuberculosis will be held in the Great Hall of the British Medical Association House, Tavistock Square, W.C.1, October 15-16. A number of Canadian tuberculosis workers will take part in the discussion. According to the preliminary program, the chairman will be Sir Arthur Stanley. The first subject, "Occurrence of Tuberculosis Among Primitive Peoples," will be discussed by Dr. Robert G. Ferguson, medical superintendent, Fort Qu'Appelle Sanatorium, Saskatchewan; Dr. Vassal, director, Pasteur Institute of Nha-Trang, Annam, and Prof. Stevenson Lyle Cummins of the Welsh National School of Medicine. The subject for the second day, "Principles Underlying a Scheme of Antituberculosis Measures in Any Country," will be discussed by Prof. Robert W. Philip, Edinburgh; Dr. John Howard Holbrook, medical director, Hamilton Health Association, Canada, and Dr. George Lissant Cox, tuberculosis officer of the County Palatine of Lancaster. The conference is open to all persons interested in tuberculosis on payment of a fee of one guinea, which includes a copy of the report of the proceedings. The expense of delegates has been sanctioned by the ministry of health. The secretary, Freda Strickland, should be informed of the names of delegates and private members promptly.

Deaths in Other Countries

Sir Arthur Chance, past president, Royal College of Surgeons of Ireland, July 26, aged 69, after a long illness.

Government Services

U. S. Public Health Service

Sr. Surg. Julius O. Cobb has been relieved from duty at Boston and assigned to duty at Los Angeles in charge of the relief station. Acting Asst. Surg. E. C. Mason has been assigned to duty at Rollo, Mo.

Army Personals

Major Frederick S. Wright will be relieved from duty at the William Beaumont General Hospital, El Paso, about October 1, and will proceed to the Letterman General Hospital for duty. Leave of absence for one month and ten days is granted Capt. Emery E. Alling, about September 1, and a leave of about three months and twelve days to Capt. Paul S. Wagner, about September 15. Capt. Walter F. Tolson is relieved from duty in the surgeon general's office and as student at the Army Industrial College and will proceed to Brooklyn to the New York General Depot for duty. Major Henry F. Philips is relieved from duty at Fitzsimons General Hospital, Denver, and will proceed to the William Beaumont General Hospital, El Paso, for duty. Major Charles C. Hillman is relieved from duty at Fort Riley, Kan., and will proceed to the Walter Reed General Hospital, Washington, D. C., for duty. Major John G. Ingold is relieved from duty at Walter Reed General Hospital, and will proceed to the Fitzsimons General Hospital for duty. Capt. Oscar T. Kirksey is relieved from duty at Denver and assigned to Fort Banks, Mass. Major Alvin J. Bayley has been assigned to duty at Fort Warren, Mass., from which post Capt. Don C. Bartholomew is relieved from duty and will proceed to Denver to the Fitzsimons General Hospital for duty. Major Chester R. Haig is relieved from duty at William Beaumont General Hospital, El Paso, and assigned to command the general dispensary, Philadelphia. Major Howard Hume will be relieved from Army and Navy General Hospital, Hot Springs National Park, Ark., about Jan. 15, 1929, and will proceed to Fort Sill, Okla., for duty. Col. Henry A. Webber, Fort McPherson, Georgia, for the convenience of the government, was ordered to his home, on or about August 13, to await retirement. Major Guthrie E. Scrutchfield, now at Walter Reed General Hospital, will by direction of the President report to the president of the army retiring board, Washington, for examination. Lieut. Thomas P. Brittain, Medical Administrative Corps, is assigned to Walter Reed General Hospital for duty, on completion of his present tour of foreign duty. Capt. Hobart D. Belknap will sail from New York, about December 28, for the Canal Zone, where he will be stationed for duty.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 18, 1928.

Improved Social Conditions in London

Dr. R. King Brown, health officer for Bermondsey (a large riverside working class district), takes occasion in the report for 1927 to make a survey of the public health since his appointment twenty-seven years ago. Many changes have taken place during the period partly local and partly expressions of national changes, and they may be taken as true for the whole of the immense working class area of London. Comparing the condition that was general in the early days of his official life with that of today, Dr. Brown is struck with the fact that babies and children are much more sensibly dressed. This applies also to adults, and particularly to women. "It is quite noticeable in any public gathering," he writes, "how much better dressed the people are now than in the early part of the present century, and this may be attributed to higher wages, smaller families, and general knowledge, especially that relating to health. I think on the whole there has been a great improvement in the cleanliness, ventilation and general appearance of the homes." Another striking change is the greatly increased sobriety of the general population. Drinking is much less prevalent than it was twenty-seven years ago. Then to see a drunken man in the streets was common; now it is extremely rare. In this Dr. Brown thinks that education has played the chief part, "though no doubt high taxation of alcohol, as well as restriction in the hours of sale, have something to do with this as well. I am quite confident that the general population will become much more sober in the future, and this will be brought about, not by oppressive legislation, but by increased education." During the period reviewed, the population of the borough has been reduced by about 10,000. The reduction is due to decrease in births, migration to the suburbs, and the pulling down of certain areas for improvements. The birth rate has gone down steadily from 34.2 per thousand of population in 1901 to 18.5 in 1927. "This reduction seems to be of a more or less permanent character," says Dr. Brown, "and is by no means an unmitigated evil, because parallel with it there has been a reduction in the number of deaths per thousand among infants. When mothers had very large families, varying from ten to fifteen and upward, they were not able to take such good care of them, and the loss of a few infants was not looked on as very serious. Families were huddled together in overcrowded houses, the result being that infectious diseases and other forms of infection, such as pneumonia and bronchitis, played havoc among the children." The next cause for the reduction is probably the education of the mothers in the case of infants. This must be partly contributed to by the rise of general education, and the special education which is undertaken by the municipal authorities and voluntary bodies under the stimulus of the maternity and child welfare acts. There are, no doubt, many contributory causes, such as the rise in the rate of wages and the cheapening of food.

Demand for Better School Dental Services

Dr. W. M. Frazer, health officer for Dewsbury, addressed the British Dental Association on dentistry in its relation to public health. An increasing number of people, he said, now visited the dentist at regular intervals for treatment, but at present there were few signs of a similar desire to visit the physician for a periodic medical examination. The craze for beauty had encouraged the desire for sound teeth among a proportion of the feminine members of the community. The modern woman was arming herself with another weapon to become more attractive and alluring. She was realizing that

a row of sparkling teeth was a telling ally to a pair of sparkling eyes. He cared very little what motive led to the proper care of mouth and teeth. Nevertheless, there was still urgent need for increased scope of the work of the dental surgeon in connection with the health of the school child. What was urgently needed was the creation of a greater interest among adults in their own dental apparatus and in that of their children. The public health service was engaged in impressing on the community by example and precept the relation between dental health and general health. The due care of teeth during the earlier years of life led in an increasing number of cases to proper attention being paid them when maturity was reached. Additional dental surgeons were required for the schools. A single full-time dentist should not be responsible for the inspection and treatment of a school population of more than between 5,000 and 8,000. Throughout the whole country the school dental service was grossly inadequate.

Insufficient Accommodation for Pay Patients in London Hospitals

A special committee, appointed by the Prince of Wales, president of King Edward's Hospital Fund for London, to report on the hospital accommodation in London for persons prepared to pay more than ordinary voluntary hospital patients, has presented an important report. Forty witnesses were examined, including hospital representatives, physicians, people who had personal knowledge of hospital arrangements in the United States, and people connected with schemes to assist members of the middle and professional classes to make provision in advance for the expenses of illness. It is pointed out that there are already pay beds at eighty of the voluntary hospitals of London, the total number of such beds being 1,055. The accommodation includes single-bedded rooms or cubicles, small wards of from two to eight beds, and large wards up to twenty-four beds, with or without curtains. Besides this greater degree of privacy, there is usually a fuller or more varied diet than in the ordinary wards, and often other amenities or privileges. The weekly charge for maintenance in these beds ranges from $10 a week up to $50 or more. There are about 543 beds at from $20 to $25; 161 beds at $30; 244 at $15 or less, and 197 at $35 or more. Charges vary partly with the class of hospital, partly with the kind of accommodation, partly with the class of patient catered to, and partly with other circumstances. Sometimes the charge is designed just to cover the maintenance cost. Sometimes the charges are less than the cost, and the difference is made up out of the general fund of the hospital. Sometimes there is a profit, which is used to assist the general work of the hospital. Sometimes there is a deficit on some of the pay beds covered by a profit on others. The hospital often makes extra charges for specific services which are not included in the weekly charge. These may include the services of an anesthetist, the use of an operating theater, x-ray and pathologic examinations, and the provision of special nurses. The patients using the accommodation described are mostly persons of moderate means, able to pay charges approximately covering their maintenance cost and also a modified medical fee. It has been made clear that there is an unsatisfied demand for more pay-bed accommodation. Several witnesses laid stress on the advantages which patients can obtain at a fully staffed and equipped hospital, as compared with the great majority of nursing homes. The committee considers that the existing provision of 1,055 pay beds has proved to be a valuable addition to the voluntary hospital service of London; that a material extension of this provision is urgently required to meet the existing demand, and that the organization of a mutual insurance scheme to assist persons of moderate means to meet the cost of maintenance and medical fees is to be recommended. It believes that an extension of the pay bed system at the voluntary hospitals, with due safeguards for the maintenance and extension of the ordinary beds, would be of advantage to the patients of all classes, to the individual hospitals, and to the voluntary hospital system as a whole. The pay bed patients of moderate means would obtain accommodation and treatment at charges within their means, especially if aided by a scheme of insurance. The well-to-do pay bed patients would benefit because they would obtain, in accommodation attached to a hospital, facilities which can rarely be fully secured elsewhere, such as the constant presence of skilled medical and surgical attention in emergencies, and of a complete organization of all the necessary ancillary services. They would in return pay charges which, when combined with the reduced cost effected by the large scale organization of the whole institution, would assist the hospitals to finance their ordinary work. The ordinary hospital patients would have the use of beds in the general wards which are now occupied, as a matter of urgent necessity, by patients who absolutely need the special facilities of a hospital, and who could and would pay extra for special accommodation if it was available.

Code "S O S" for Sea Physician

Dr. C. Courtenay Lord, assistant medical secretary of the British Medical Association, sailed on the Cunarder *Berengaria* for New York as an extra assistant surgeon to carry out tests of a new medical code, formulated by a committee of medical experts of the board of trade, the ministry of health, and the British Medical Association, for use at sea by captains of ships without physicians. A questionnaire has been formulated to enable master mariners in ships without a physician to give a clear description of cases of illness in code, and to get directions and diagnoses by wireless. If it is satisfactory at the end of three tests, recommendations will probably be made with a view to the code becoming international for use on ships of all countries. The code is mainly the work of Dr. Maitland, medical superintendent of the Cunard Line. Captains of ships without physicians crossing the Atlantic during the next few days have been notified of the tests. Dr. McIntyre, principal medical officer to the board of trade, will sail in the Cunarder *Mauretania* for the same purpose, and Dr. Trevor Morgan, of the ministry of health, in the *Aquitania*.

Government Report on the Technic of Vaccination

Some time ago the minister of health appointed a committee of eminent physicians, with Sir Humphry Rolleston as chairman, to report on: (1) matters relating to the preparation, testing and standardization of vaccine lymph; (2) the methods available in the light of modern knowledge to diminish or remove any risks that may result from vaccination, and (3) the best methods of vaccination to give protection against risk of smallpox infection in epidemic and nonepidemic periods. The report, which has just been published, must for some time be regarded as the last word on the subject. The recommendations are that: 1. In place of the officially advocated four insertions, trial be made of vaccination and revaccination in one insertion with a minimum of trauma, and multiple scarification and (or) cross-hatching be deprecated. 2. Primary vaccination be performed in infancy, between the ages of 2 and 6 months, as at present, and revaccination be offered when a child enters school (5 to 7 years), and again on leaving (14 to 16 years). 3. Vaccination in multiple insertions be available for such persons as desire to obtain the maximal protection against smallpox obtainable at one operation. 4. In public vaccination, parents be informed that if, in consequence of vaccination, a child requires medical attention, it is the duty of the public vaccinator concerned to provide such attention without cost to the parents. 5. Instead of the one inspection now required in the case of public vaccination there be two: the first not earlier than the seventh or later than the tenth day, and the second not earlier than the fourteenth or later than the seventeenth day.

The committee points out that while a minimal potency as estimated on a laboratory animal is desirable, and indeed is insisted on by the regulations relating to the manufacture of vaccine lymph under the therapeutic substances act, there is yet a great lack of information as to the minimal dose of lymph necessary to secure the characteristic reaction in man and—a point of greater importance—to secure adequate immunity from smallpox for at least five or six years. Analysis of the risks involved in vaccination shows that the number of deaths attributed to vaccinia has markedly diminished since the act of 1898 came into operation, but that the nature of the risks, with one important exception, remains substantially the same, and that septic conditions still predominate. In the last few years there is evidence that in this country and abroad, especially in Holland, acute disease of the central nervous system, characterized in the main by symptoms indicative of encephalitis, has occasionally followed vaccination. The committee consider that the cooperation of vaccinia with the viruses of poliomyelitis or of epidemic encephalitis, or possibly some unknown neurotropic virus harbored by a vaccinee, must for the present be retained as a working hypothesis of causation, pending further research into the nature and properties of neurotropic viruses in general. The occurrence of postvaccinal nervous disease, however seldom it may occur, is serious and cannot fail to have an effect on vaccination, both in its administrative and in its purely medical aspects. The committee points out the extreme rarity of such manifestations, particularly after revaccination, and after primary vaccination in early infancy. Early infancy remains, therefore, the time of choice for primary vaccination. In order to promote the acceptance of vaccination, the committee recommends a trial of vaccination in one insertion in a manner calculated to produce as little discomfort as possible, and urges the necessity for revaccination in like manner at stated intervals. The present time is, in its opinion, opportune. The knowledge to be gained as to the efficacy of vaccination in one insertion in man will supplement that to be derived from further animal experimentation, which should be continued.

PARIS

(From Our Regular Correspondent)

Aug. 1, 1928.

Congress of French Otoneuro-Ophthalmologic Societies

The Congress of French Otoneuro-Ophthalmologic Societies was held recently in Marseilles. This congress served the special purpose of bringing specialists in diseases of the eye and ear in association with neurologists. This afforded the ophthalmologists and otologists an opportunity for considering such physiologic phenomena as the repercussive effects of remote nervous disorders. By this collaboration, new methods of treatment have been devised for cases formerly regarded as irremediable. The congress was presided over by M. Henri Roger of Marseilles, assisted by Professor de Marzio of Rome, Professor Euzière of Montpellier, Prof. G. Ferri of Rome, Professor Pugnat of Geneva, Professor Barré of Strasbourg, Professor Paubian of Bucharest, and Professor Escat of Toulouse. The main topic on the program was "Vascular Spasms in Otoneuro-Ophthalmology." Discussion of the topic afforded an opportunity for reviewing the recent conceptions of the rôle of vasomotor phenomena in regard to the action of sympathetic nerves in disorders of the labyrinth and the retinal circulation; also the treatments that have been proposed in this connection. A paper by Professor Portmann of Bordeaux, who has made extensive researches on the problem, contained the view that excitation of the cervical sympathetic nerves and ganglions about the carotid artery causes vasoconstriction and ischemia, and that their section creates congestion of the external ear, the tympanum and the labyrinth, sometimes with a marked improvement in hearing. Portmann has also studied the effects of local thermic action, and, in agreement with Kobrack, associates them with vasodilatation. The medicaments that act on the sympathetic nerves when employed in these cases are of inconstant action, with the exception of epinephrine. From these experimental and clinical facts, the author has developed a "syndrome of labyriathine angiospasm," i. e., a buzzing sound in the ears, dizziness, deafness, vestibular hyperexcitability, and hypertonia of the sympathetic nerves, in opposition to which there is a "syndrome of hypotonia." The two syndromes may alternate in the same patient, such alternation being a sign of neurovegetative dystonia. The paper of M. Bremer of Brussels on the same subject was mainly a critical study without decisive conclusions. He admits that there are angiospasms due to local arterial conditions, angiospasms of endogenous and exogenous toxic origin and other angiospasms that are the expression of a constitutional spasmophilia, as Raynaud's disease. He believes that the various treatments proposed vary greatly in efficacy, being uncertain in their effects. The third paper, presented by MM. Aubaret and Jean Sedan of Marseilles, considered angiospasms of the ocular region, which they classify as follows: (1) ocular spasms affecting the retinal vessels, which involve the arterial trunks or one or more of their branches and which are connected with the syndrome of migraine or the ophthalmic syndrome; (2) spasms associated with preexisting or simultaneous ocular lesions, as chronic arteritis, ocular arteriosclerosis, retinitis, chorioretinitis, glaucoma or retrobulbar neuritis, with the vasoneuritic retinitis of Horniker; (3) spasms causing permanent ocular lesions, such as optic atrophy and chronic glaucoma. The diagnosis will be based on transient blindness with the absence of ophthalmic lesions, disappearing on the inhalation of amyl nitrite and coinciding with spasms in other parts of the organism. The etiologic factors are likewise of great importance. They are: arterial hypertension; hyperexcitability of the sympathetic nerves; endocrine changes; embolism of the central artery; epileptic crises; intoxication from lead, quinine, tobacco, alcohol or sodium salicylate; the ocular disorders of retinitis, choroiditis and glaucoma; and endonasal, sinusal and dental lesions. The treatment of angiospasms of the eyeball should be etiologic; that is, antitoxic, specific (even in the absence of a positive Wassermann reaction), or symptomatic. Symptomatic treatment may consist of amyl nitrite inhalations, pilocarpine injections or the local use of ethylmorphine hydrochloride. Denudation of the carotid artery may be tried in particularly grave cases.

After the presentation of these papers, some interesting opinions were formulated. Some expressed the view that the rôle of angiospasms should not be exaggerated, while others thought that these spasms may have too many remote causes for one to appreciate the part they play. M. Pugnat suggested that the improvement in hearing that follows sympathectomy can be secured just as well by douches of heated air to the tympanum, which cause a vasodilatation of the vessels of the labyrinth and an improvement in hearing that may extend over several months. M. Terracol of Strasbourg held that, surgically, the results of denudation of the carotid are superior to the results from sympathectomy. The effects of the latter depend on the neurovegetative constitution of the subject. As a drug, epinephrine is the only medicament that can be relied on. M. Escat of Toulouse disapproved of the treatment of the Ménière syndrome by means of quinine, and recommended great prudence in administering amyl nitrite to patients with arteriosclerosis. M. Lacat pointed out the relations between angiospasms and mental shock. M. Glio Ferri of Rome emphasized the good effects of belladonna medication in subjects with an elevated vagal tonus. M. Villard of Montpellier cited an interesting case of atrophy of the optic nerve, which began with a sudden spasm that caused blindness for a period of ten hours, after which vision gradually returned. Eight days later, however,

atrophy of the nerve set in and continued to increase. M. Mourier Kuhn of Lyons cited two cases in which a noteworthy improvement of visual acuity resulted immediately from an intranasal intervention.

The congress, before adjourning, decided to hold its next meeting in Bordeaux, in 1929, under the chairmanship of Professor Portmann. The main topic on the program will be "Headache in Relation to Otoneuro-Ophthalmology: Its Pathologic Physiology and Treatment." The official papers will be presented by MM. Halphen, Monbrun and Tournay. The next meeting will be held in Brussels, in 1930, coincident with the hundredth anniversary of the independence of Belgium. There will be two main topics on the program: (1) "Laryngeal Paralysis," by MM. Barré and Terracol of Strasbourg, and (2) "Disorders Affecting the Associated Movements of the Eye," by MM. Di Marzio and Fumarola of Rome.

The Sixth International Neurologic Congress

The sixth International Neurologic Congress has completed its sessions in Paris, under the chairmanship of Dr. Laignel-Lavastine. The meeting was devoted entirely to the study of cerebral tumors. M. Clovis Vincent discussed the cerebral tumors of the frontal lobe. His paper was followed by an address by Dr. de Martel on the genesis and the surgical treatment of cerebral tumors. Dr. Béclère, president of the Academy of Medicine, explained the methods of examination and the ways in which radiology may supplement the clinical diagnosis. He recounted also the results secured thus far in the radiotherapeutic treatment of cerebral neoplasms. MM. Bollack and Hartmann pointed out the value, at the start, of the ophthalmologic examination, the disorders of vision or the inconspicuous lesions of the fundus oculi being often the first symptoms of a cerebral tumor. The congress was a complete success, and attracted to the Salpêtrière many foreign scientists, who took part in the work of the convention. A few days before the opening of this congress, Professor von Economo of Vienna gave a noteworthy lecture in the clinic of diseases of the nervous system, on "The Configuration of the Brain."

The Atmosphere of the Subway in Paris

Judging by various articles in the newspapers, the population of Paris often becomes aroused over the dangers alleged to be associated with long journeys on the subway lines. The same question arose when the first subway line was constructed, thirty years ago. Many feared that passengers would be asphyxiated. Heeding the many warnings, the architects provided a large number of air shafts connecting the subway terrain with the ground levels. Analyses of the air at the lower levels, made by Gréhant, have shown it to be perfectly normal. Nevertheless, the old fear has returned, to a certain extent. It is being argued that the complete absence of sunlight, together with the natural humidity and the presence of germs deposited by the public, who do not always respect the antispitting ordinance, while at the stations or in the cars, creates favorable conditions for the development of germ life that might become dangerous. A committee was therefore appointed to make investigations. Samples of air were taken daily at various points in the subway levels. This air was filtered through cotton to collect the germs, which were then inoculated in guinea-pigs. Other guinea-pigs were put in cages and allowed to live under ground. As none of these experimental animals have shown any signs of infection, the experiments, after a period of nine months, have been stopped. Furthermore, it has been established that no employees, fixed or ambulant, who spend nearly all their time in the subway levels, for months together, have developed tuberculosis. Another opinion opposite to the first and equally groundless, has recently been advanced; namely, that the air in the subway levels is particularly salubrious for the reason that the wooden railway ties are impregnated with creosote to prevent decay and that these creosote vapors are mixed with the air of the lower levels, as may be readily recognized by its odor. Attention has been called, too, to the disinfecting action of the electrical waves emitted by the passing trains. Whatever may be the intrinsic value of these claims, the fact remains that no evidence has been obtained to show that the air of the subway exerts any harmful effects.

ITALY

(From Our Regular Correspondent)

June 15, 1928.

Congress of Medical Radiology

The eighth National Congress of Medical Radiology has been held at Florence under the chairmanship of Prof. Luigi Siciliano of the University of Florence. The congress convened in the Great Hall of the Scuola di sanità militare. In the same building was organized an exhibit of radiologic equipment, including the forms of apparatus used during the war, as well as the more recent devices.

RADIOTHERAPY IN INFECTIOUS DISEASES

Professor Attili of Rome presented the official paper on the first main topic, "Radiotherapy in Infectious Diseases." The speaker stated that, of the various radiations of short wavelength, the roentgen rays are the best adapted for the treatment of acute infectious diseases. The form of technic employed is of the greatest importance in determining the final outcome of treatment. Irradiation may be direct or indirect. For direct application, clinical experience has shown that the best type of treatment, which the radiologist can employ with slight variations to suit the individual case, is that which requires a tension of 100 kv. (20 cm. spark gap), 2 ma., with a screen of 3 mm. of aluminum, 24 cm. focal distance, five minutes' exposure in an open field. That constitutes a dose that represents 20 per cent of the erythema dose; namely, 120 German roentgen units (equal to about 840 French roentgen units), 1-2 H. The spectrographic wavelength is 0.12 angstrom unit. The time when the irradiation is applied is also very important. Early intervention appears advisable. The applications can be repeated at intervals of from five to seven days. In about one third of the cases a single application is sufficient.

Indirect radiotherapy may be applied to a site distant from the lesions (ordinarily, to a thigh), an erythema dose being administered under strong filtration. In diseases of a septicemic type, the spleen and the other hematopoietic organs may be irradiated with weak doses. The speaker referred to his series of 507 personal cases of acute infectious diseases in which he had applied roentgen irradiation. He obtained excellent results in infections produced by cocci; in suppurations he noted, in from forty-eight to seventy-two hours from the beginning of the irradiation, absence of germs, diminution of the pain, leukocytosis of from 20 to 30 per cent (after a transient leukopenia), and increase of the bacteriolytic capacity of the blood.

Professor Cardinale of Genoa also presented a paper on this topic, in which he gave an account of his experimental studies, with a view to analyzing the mechanism of the action of rays on micro-organisms. He stated that it is impossible, for the present, to carry over into the clinic for human beings the results of the experiments performed in vitro and on animals, owing to the great difference between the therapeutic doses applicable in the clinic and the experimental doses. With regard to the mechanism of the action of the rays, we are at present confronted by several hypotheses, some of which ascribe a value to the local action of the radiations, while others suggest, rather, a general action, on which the local effects depend.

In the discussion that followed, several members took part, among them Professors Maragliano of Genoa, Milani of Perugia, and Porcelli of Leghorn.

CONGENITAL OSTEODYSTROPHY IN RELATION TO THE PERIOD OF GROWTH

The official papers on the second topic, "Congenital Osteodystrophy in Relation to the Period of Growth," were presented by Professors Alberti of Brescia and Bianchini of Rome.

Professor Alberti pointed out that to radiology belongs the conception of the so-called biologic plasticity of the bone, according to which the bone tissue is considered subject to constant processes of transformation, and particularly sensitive to every kind of stimulus. This sensitiveness is more marked, the younger the bones and the greater the biologic activity. To various stimuli the bone may respond with reactions that are expressed essentially by atrophy or hypertrophy, which constitute, therefore, the fundamental changes in any osteodystrophic process.

The speaker described the principal forms of congenital osteodystrophy, those of infancy and those of growth, including those of endocrine origin. He said that atrophy may be acute or chronic, and that there are various types of hypertrophy, local and general, among which may be mentioned acromegaly.

Professor Bianchini discussed the faults of bone formation. He distinguished the condition due to defective deposits of calcium salts and that consisting in the metaplastic transformation of the bone marrow into fibrous and lipomatous tissue. As belonging to the first class, he described late rickets and osteomalacia. To the second class he assigned osteitis fibrosa, osteitis deformans of Paget, osteoporosis and osteopsathyrosis. Radiology is valuable for the differential diagnosis in all these conditions, although great difficulties are sometimes involved.

RADIOLOGIC DOSIMETRY

Prof. Enzo Vanoni presented the official paper on the third main topic, "Radiologic Dosimetry." He asserted that the inconstancy and the diversity in the results that are secured in applying roentgen rays and radium to malignant tumors are due, in great part, to the lack of exact means of measuring the radiations. In recent years, however, noteworthy progress has been made in this field, and the problem is approaching a final solution. The speaker recommended the adoption of more exact definitions and of a precise terminology with reference to the quantity, quality, intensity and dosage of the radiations. He presented a resolution, to be transmitted to the next international congress (to be held in Stockholm), on the new regulations and standards to be introduced with reference to radiologic dosimetry. The resolution was approved.

The conventionists visited the private radiotherapeutic institute of Professor Palumbo and the Istituto Fotoradioterapico at the Royal University. Numerous communications on kindred topics were presented.

The Work in Albania of the Italian Red Cross

A mission of the Italian Red Cross Society remained five months in Albania, giving aid to the population in the northern part suffering from the famine. The mission distributed 235,000 kg. of flour, 145,000 cans of preserved meats, 5,500 pairs of shoes, 9,400 meters of cloth, 23,000 blankets, 1,000 coats and cloaks, and several hundred quintals of various other products.

A Collection of Scientific Bibliography

Senator Marconi, president of the national council of research, has sent an invitation to the Italian publishers to participate in the collection of technical and scientific Italian bibliography. Publication will be begun as soon as possible, and will be entrusted to the Casa Editrice Zanichelli in Bologna. It will take the form of monthly bulletins and will include the subject matter comprised in group 7, according to the international classification of subjects (biology and related subjects). All publishing houses that have printed works on scientific and technical subjects are urged to send, within a month, a complete list to the Consiglio Nazionale delle Ricerche.

The Death of Professor Parodi

The death of Prof. Umberto Parodi, the occupant of the chair of pathologic anatomy at the University of Catania, at the age of 49, has been announced. Professor Parodi was graduated in 1903 from the University of Turin; in 1909 he acquired the *venia legendi* in pathologic anatomy. In 1923, he became an instructor in the University of Cagliari, and in 1925 he obtained a chair at the University of Catania. His most important works deal with the subrenal paraganglion, hypertrophy of the uterus, and certain anatomopathologic observations on the nervous system. He was the first to demonstrate the transmission of syphilis to the testis of the rabbit, which is the basis of the experimental studies on syphilis. He was the first in Italy to produce tar cancer.

NETHERLANDS

(From Our Regular Correspondent)

June 28, 1928.

Public Health Services in Amsterdam

The communal service celebrated recently the twenty-fifth anniversary of its establishment. In 1903 the new institution began to function, and the quarter of a century that has since elapsed has witnessed considerable development. At first it was carried on by a small number of physicians who gave their services to the poor, without compensation. It has not confined itself to this, however; it has devoted itself likewise to the organization of preventive hygiene. Most of the progress of the institution dates from recent years and is due chiefly to the present director, Dr. Heijermans, who inaugurated a system of economic division of hospital beds and introduced a rigid control of admissions, with the result that the facilities of the hospitals have been adjusted to fit the needs of the situation. School examinations, from medical and hygienic points of view, include now a school population of more than 90,000 children. The work comprises consultations in behalf of infants; crusades against lice infestation, favus, trachoma and venereal disease; dental care of school children; the treatment of mental diseases and social work among defective children; matters pertaining to disinfection and quarantine, and malaria control.

Inauguration of the Boerhaave Institution in Leiden

The new university hospital at Leiden was recently dedicated under the chairmanship of Minister Waszink. A large number of invited guests assembled for the occasion in the Great Hall of the hospital. The clinics have been organized or will be in a few months, so that, with the beginning of the new academic year, the whole faculty of medicine will be installed in the "Boerhaave Quarter," which stands out as a unique institution in our country. This is an event of considerable importance from several points of view: (1) for the history of instruction in medicine; (2) for the advance of medical science in our country, and (3) for the treatment of patients. Professor Van der Hoeve christened the new university hospital the "Boerhaave Kwartier," thus honoring our great clinician of the eighteenth century.

The National Federation for the Promotion of Social Hygiene Among Children

In the department of labor, commerce and industry, the director general and the chief "inspector" of the public health service recently arranged a meeting of the committee on the sanitary inspection of children and twenty-five societies that are concerned with children, with a view to establishing a national federation for the promotion of social hygiene among them. The director general emphasized that the efforts put forth by each of these societies would be much more effective in the promotion of social hygiene among children if better opportunities for the exchange of views were afforded. It is not the idea to make the various societies less autonomous or

to bring them under the control of the state. Each society will retain its independent character, the purpose of the federation being merely to effect a union of all societies that are working for an amelioration of the hygienic conditions among children. A committee was appointed to draw up a constitution for the federation. When this has been done, it is proposed to affiliate with the international federation in Brussels.

The International Conference of the Red Cross Societies

From October 22 to 27, 1928, the international conference of the Red Cross societies, which is held every five years, will convene at The Hague. It is likely that fifty national Red Cross societies will send delegates. The chief topics on the program are: the Red Cross and the protection of the civil population against war gases; attenuation for the civil population of the evils of a blockade; the standardization of sanitary equipment; study of the means to be adopted to lessen war losses, and the task of the Red Cross in naval warfare. A number of other questions of humanitarian interest will be discussed.

Electrical Pasteurization of Milk in Amsterdam

The Nederlandsche Karnemelkmaatschappij has introduced a new type of electrical apparatus for pasteurization, which was designed by Prof. A. H. W. Aten and Dr. Lulofs. The new apparatus is based on the principle of all other pasteurization machines, but the pasteurization is not effected by steam but by means of a current of 3,000 volts that traverses the milk between two electrodes. The raw milk is collected in a special reservoir, from which it is pumped through pipes toward the electrodes, from which point it is collected in a reservoir specially constructed for the purpose and heated to 85 C. Regulation of the flow of milk maintains automatically a constant temperature. If the regulatory device controlling the flow of milk should get out of order for any cause, the current would be automatically checked and the nonpasteurized milk returned to the reservoir. The new apparatus marks in every respect a distinct advance in the milk industry.

The Seventieth Birthday of Prof. E. Dubois

The University of Amsterdam celebrated recently the seventieth birthday of Prof. E. Dubois. On that occasion the speakers recalled the great merits of Professor Dubois, the services that he has rendered paleontology, and, more particularly, his discovery and reconstruction of *Pithecanthropus erectus*.

The Association of Logopedia and Phoniatrics

The Association of Logopedia and Phoniatrics is about to organize a course for students of speech culture. The committee in charge of the course is presided over by Prof. Dr. Burger of the University of Amsterdam.

The Medical Examination of Persons Accepting Employment in Factories

Dr. Kranenburg, medical inspector of labor, has been making a special study of the medical examination of persons who consider themselves to be in good health and complain of no disease. He advises the medical examination of all young persons on beginning employment in factories and also the adults who have been employed some time, in order to recognize the healthy persons and those with defects and a predisposition for certain diseases, as many grave disasters might thereby be averted. It is not advisable to wait until the disease brings the sick to the physician, but the disease should be forestalled. With this object in view, the medical examination of school children and the examination, by the inspector of labor, of adults on entering the industries have been introduced.

The department of the inspection of labor, in the Netherlands, endeavors to examine as many of the young generation as possible. In principle, young persons should be examined twice before their eighteenth year, and the results of these examinations should be recorded in the central archives of the department of labor inspection. The limited number of physicians in this service and the limited appropriations have prevented this in the past. The large industries are now demanding it. A workman returning to work in a factory after illness is subjected too soon to strenuous labor. The physician should examine such workman and determine his exact capacity for labor; the workman should then be examined again, from time to time, to prevent the recurrence of illness. That is the duty of the industrial physician and of the hygienist. The latter should be allowed great independence of judgment and should have the sympathetic collaboration of the factory administration and management. He should have sufficient opportunities of keeping abreast of the progress of social hygiene, and, more particularly, of hygiene as it pertains to the workingman. This is the best means of reducing the number of patients and lessening the need for sanatoriums.

BERLIN

(From Our Regular Correspondent)

July 28, 1928.

Hygienic Aspects of Present-Day Dress

Addressing the Berliner Gesellschaft für öffentliche Gesundheitspflege, Professor Friedberger gave an interesting talk on certain hygienic aspects of present-day modes of dress. He considered the summer and winter styles worn by men and women, and pointed out that, corresponding to the different weight of men's and women's clothing, there was a difference in the behavior of the body temperature and the relative humidity of the air spaces between the clothing and the body. He believes that the recent criticism of the light clothing worn by women in winter is justified only in part. Women avoid now the heavy undergarments formerly worn, as they are not in keeping with the "modern figure" or with the quality and cut of the outer dress. They protect themselves against the cold by woolen overgarments, coats and furs. On the other hand, men in general continue to wear heavy underclothing for protection in winter, and as they spend the bigger part of the day in rooms that are well heated they suffer from heat stasis and from excessive perspiration, the same as in summer. Thus it would be better if men also would rely on suitable outer-clothing for protection against the cold.

The differences between the two sexes are based not only on the style of dress but also on the quality of the goods used for garments and on the way the goods is made up. Whereas, twenty years ago, the textbooks on hygiene figured usually 7 Kg. for the winter clothing of men—and a "little more for that of women," the weight of women's clothing is only about a tenth of what it was formerly, while the weight of men's clothing has remained approximately the same. The excessive clothing of men causes not only a difference in the heat radiation and the amount of perspiration but also differences in connection with the functioning of the skin, to which little or no attention has hitherto been paid.

The speaker presented numerous tests from which it was apparent that the ordinary clothing material worn by men does not admit rays of light, especially when garments are lined, as is usually the case, whereas women's unlined garments, of little weight, are very pervious to light. The technic of his experiments on the perviousness of clothing material to light is simple. Paper specially sensitized to light is placed under the materials to be examined and they are then exposed for a definite time to the sunlight or to an artificial light. The extent to which the paper is blackened furnishes the scale of measurement for the perviousness to light. He carried out experiments on persons in Berlin and in high plateau regions, which revealed that scarcely any rays of light reached the

sensitized paper strips pasted on the body in the case of the men, whereas the paper strips under the clothing of the women showed evidence of being markedly affected by the light. The light rays penetrate knitted and crocheted materials and also men's shirts but do not penetrate the lined coat unless it is made of goods especially pervious to light. Thus, except for the face and hands, practically no light ever reaches the bodies of men. In this respect, women have a distinct advantage over men, from their youth up, as the legs of the little girls are left almost bare, while little boys are often dressed in sailor garb with long trousers. It may be added that the perviousness to light rays is not the only aspect; the admission of air to the skin is likewise important, and the requirements for the admission of air and light are about the same. For similar reasons, the use of closed pajamas appears ill advised.

The School in the Crusade Against Tuberculosis

The great importance of the school in the crusade against tuberculosis is emphasized by Professor von Brunn in an article in the *Deutsche medizinische Wochenschrift*. The school is the only place in which a large group of the entire population can be given preventive and prophylactic treatment. The pupils of all the institutions of learning must be examined by the school physicians and their cases referred, if necessary, to the proper bodies for treatment. The first requisite, of course, is for the school to fulfil all hygienic demands through sensible architectural plans and interior arrangements, cleanliness of classrooms, the support of all beneficial athletic exercises, the creation of open-air schools, and the establishment of moderately priced lunches. The special training in the problems of youth is given in association with instruction in widely different subjects, and, in the last year of school, a wider survey is given by means of a course in nature study and the study of mankind. The most important task devolves on the teacher, who must not only furnish a living example to his pupils but also see that all who become sick are referred to the school physician. Four hundred out of 10,500 children examined by the author were found to have tuberculosis. Disorders of the hilum glands are frequent and should not be taken as an indication for coddling of the child. The few serious cases must be separated out from among the large number of harmless cases. Tuberculosis in a teacher is a grave menace. He exerts a harmful influence on his class. There are numerous instances in which many children have become infected by such a teacher. The timely recognition and the removal of a tuberculous teacher is exceedingly difficult, however; it is the duty of the school physician to be on the watch for such cases. If there are several cases of tuberculosis in a given class or in a small school, a thorough general examination must be instituted to discover the causes. In general, it is the duty of the school physician to look for sources of infection. He should not overlook the fact that the original focus of infection may be in an elderly person; for not infrequently the grandparents transmit the disease to their grandchildren, with whom they are wont to play.

Marriages

WILLIAM TURPIN DOWDALL, JR., of Paducah, Ky., to Miss Glennae Lind Stembridge of Chase City, Va., August 22.

JOHN MELVIN CRYMES, South Hill, Va., to Miss Ruth Elizabeth Staude of Richmond, Va., recently.

MANUEL M. MONSERRATE, Guayma, P. R., to Miss Martha Helen Doody, at Norwich, N. Y., August 21.

W. J. BRYAN MCAULIFFE, San Francisco, to Miss Hazel G. Mackay, in Seattle, May 11.

BENJAMIN MAURICE SHURE to Miss Rose Renée Labé, both of Brooklyn, September 9.

EDWIN JEAN BLONDER to Miss Beatrice Beryl Provus, both of Chicago, September 4.

Deaths

Ralph Rankin Campbell ✠ Los Angeles; Jefferson Medical College of Philadelphia, 1890; secretary, 1899-1906, and chairman, 1906-1907, of the Section on Cutaneous Medicine and Surgery of the American Medical Association and a member of the House of Delegates, 1908-1909; at one time professor of dermatology, College of Medical Evangelists, Los Angeles; member of the American College of Physicians; formerly on the staffs of the White Memorial and Los Angeles County hospitals and the Barlow's Sanatorium, Los Angeles, the Cook County Hospital, Henrotin Hospital, Chicago Policlinic Hospital and the Children's Hospital, Chicago; aged 61; died, August 18.

Frank Allen Priest ✠ Marion, Ind.; Hahnemann Medical College and Hospital, Chicago, 1898; formerly president of the Indiana State Tuberculosis Association; democratic nominee for governor of Indiana in 1924; served during the World War; on the staff of the Grant County Hospital; health officer of Marion; aged 53; died suddenly, August 17, at Milwaukee, of heart disease.

Robert Fagin, Memphis, Tenn.; Vanderbilt University School of Medicine, Nashville, 1908; member of the Tennessee State Medical Association; at one time associate professor of ophthalmology, University of Tennessee College of Medicine; formerly on the staffs of the Baptist Memorial and Memphis hospitals; aged 45; died, August 7, at the result of a cerebral hemorrhage.

Henry Sula Cocram, New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1891; emeritus professor of gynecology and obstetrics, Tulane University of Louisiana Graduate School of Medicine; member of the Southern Surgical Association; on the staff of the Charity Hospital; aged 61; died, July 8, of chronic myocarditis.

William Harvey Merriam ✠ Captain, M. C., U. S. Army, Moultrieville, S. C.; University of Pennsylvania School of Medicine, Philadelphia, 1902; entered the Medical Corps, U. S. Army, as a first lieutenant in 1918 and was promoted to captain in 1921; aged 55; died, July 19, at the Walter Reed General Hospital, Washington, D. C., of glioma.

Harry Leonard Kilgore, Belfast, Maine; University of Vermont College of Medicine, Burlington, 1911; member of the Maine Medical Association; served during the World War; on the staffs of the Bradbury Memorial and Waldo County General hospitals; aged 43; died, August 9, of chloroform, self-administered.

Frederick A. Hipolite, Devalls Bluff, Ark.; University of Arkansas School of Medicine, Little Rock, 1891; member of the Arkansas Medical Society; also a druggist; formerly secretary of the Prairie County Medical Society; aged 65; died, July 19, at St. Vincent's Infirmary, Little Rock, of enterocolitis.

Justus S. Davidson, Galveston, Texas; Louisville (Ky.) Medical College, 1888; member of the State Medical Association of Texas; connected with the U. S. Public Health Service; aged 67; died suddenly, May 17, of cerebral hemorrhage and arteriosclerosis.

Jacob L. Hare, Wynne, Ark.; Kentucky School of Medicine, Louisville, 1889; member of the Arkansas Medical Society; president of the Cross County Medical Society; bank president; aged 67; died, July 29, of diabetes mellitus.

Richard Calvin Lynch, Success, Ark.; Barnes Medical College, St. Louis, 1910; member of the Arkansas Medical Society; past president of the Clay County Medical Society; aged 42; died, August 12, of edema of the lungs.

Harry Raymond Dapper, Carrick, Pa.; University of Pittsburgh School of Medicine, 1925; member of the Medical Society of the State of Pennsylvania; aged 27; was shot and killed, August 20, by an unknown stranger.

Edward Winfield Egan, Onset, Mass.; Jefferson Medical College of Philadelphia, 1891; veteran of the Spanish-American War; aged 68; died, August 9, at the Crary Hospital, Dartmouth, of carcinoma of the intestine.

William Doms, Woodstock, Minn. (licensed, Minnesota, under the Act of 1887); member of the Minnesota State Medical Association; formerly county coroner; aged 70; died, July 21, of erysipelas and influenza.

Joseph Aloysius Dorgan, Lawrence, Mass.; Harvard University Medical School, Boston, 1898; member of the Massachusetts Medical Society; aged 55; died, July 25, of carcinoma of the tongue.

Granville Bryan Huffaker, Bald Knob, Ark.; Tennessee Medical College, Knoxville, 1898; aged 58; died, August 19, at the Wakenight Sanitarium, Searcy, following an operation for intestinal obstruction.

Harry Blackenstoe Roop ✙ Columbia, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1898; aged 57; on the staff of the Columbia Hospital, where he died, August 8, of cerebral hemorrhage.

Iver C. J. Wiig ✙ Fort Lauderdale, Fla.; Medical Department Hamline University, Minneapolis, 1896; aged 64; on the staff of the Memorial Hospital, where he died, August 4, following an operation.

Anna K. Masterson Roberts, Lenexa, Kan.; College of Physicians and Surgeons, Medical Department Kansas City University, Kansas City, 1898; aged 57; died, March 6, as the result of an accident.

James Arthur Ardiel, Grand Rapids, Mich.; University of Western Ontario Medical School, London, Ont., Canada, 1899; aged 59; died, August 8, at the Butterworth Hospital, of sporotrichosis.

Eugene Simeon Belisle ✙ Worcester, Mass.; University of Montpellier, France, 1916; served during the World War; aged 36; died, August 4, at the City Hospital, of anterior poliomyelitis.

William Albert Catlett ✙ Knoxville, Tenn.; Tennessee Medical College, Knoxville, 1897; aged 59; died, July 18, at the Knoxville General Hospital, as the result of a carbuncle on the neck.

Peter H. Fisher, Hamilton, Mich.; Detroit College of Medicine and Surgery, 1900; aged 54; died, August 13, of heart disease.

Robert Cooper Fullenweider ✙ La Salle, Ill.; Rush Medical College, Chicago, 1896; on the staff of St. Mary's Hospital; aged 58; died, August 10, of cerebral hemorrhage.

Gilbert Lawrence Clark, Atlanta, Ga.; College of Physicians and Surgeons, Baltimore, 1880; aged 71; died, August 14, at the Davis-Fischer Sanatorium, of pernicious anemia.

Charles Smith Allen, Quapaw, Okla.; University of Arkansas School of Medicine, Little Rock, 1913; aged 45; died, March 8, at Kansas City, Mo., of heart disease.

Arthur Bertram Moulton ✙ Lewiston, Minn.; Medico-Chirurgical College of Philadelphia, 1900; aged 52; was accidentally electrocuted at his home, May 12.

Ezra E. Christie, Cleo Springs, Okla.; College of Physicians and Surgeons, Keokuk, Iowa, 1881; aged 70; died, February 28, of carcinoma of the stomach.

John H. Moe, Sturgis, Mich.; College of Physicians and Surgeons, Baltimore, 1881; aged 70; died suddenly, August 13, at Battle Creek, of angina pectoris.

George Marcotte, Contrecoeur, Que., Canada; Laval University Faculty of Medicine, Quebec, 1904; aged 51; died, January 7, of myocarditis.

Bernard F. Dougherty, Chariton, Iowa; College of Physicians and Surgeons, Chicago, 1889; aged 68; died, July 18, of carcinoma of the intestine.

John Wesley Peeples, Dodsonville, Texas; University of Louisville (Ky.) School of Medicine, 1879; aged 72; died, August 5, of pneumonia.

James W. Cooper, Smith Mills, Ky.; Kentucky School of Medicine, Louisville, 1868; aged 87; died, August 13, at Henderson, of septic cystitis.

Norman Bruce Dawson, Sterling, Ohio; Cincinnati College of Medicine and Surgery, 1878; aged 72; died, August 7, of heart disease.

Lewis M. Wilkins, Galveston, Texas; Meharry Medical College, Nashville, Tenn., 1887; aged 70; died, August 4, of heart disease.

Lafayette Bordie McCrary, Kingsport, Tenn.; Louisville (Ky.) Medical College, 1889; aged 62; died, June 5, of cardio-renal disease.

Emil Kober, New York; Bellevue Hospital Medical College, New York, 1896; aged 59; died, August 10, of acute bacillary dysentery. .

Edwin F. Beckwith, Ionia, Mich.; Starling Medical College, Columbus, Ohio, 1885; aged 71; died, August 7, of heart disease.

Olin R. Bates, Climax, Mich.; Grand Rapids Medical College, 1903; aged 49; died, August 11, of angina pectoris.

Peter Crawford, Jr., Chicago; Hering Medical College, Chicago, 1913; aged 43; died, July 12, of meningitis.

Bureau of Investigation

DYNELL WATER

More Quackery in the Mineral Water Field

In a southwestern suburb of Chicago—Palos Park, Illinois—there is a concern known as the Dynell Spring Water Company. For the past few years, "Dynell Spring Water" has been advertised by methods that are more reminiscent of "Peruna" and "Lydia Pinkham" than of mineral waters. It appears that a Mr. Charles A. Coey is the alleged discoverer and sole owner of Dynell Springs. Mr. Coey is described in some of the advertising as a "prominent Chicagoan," who, for years, drank no other water than that which comes from this "famous spring."

Mr. Coey's qualifications as a dispenser of a therapeutic agent seem to rest on no more solid a foundation than the fact that he was, for many years, the moving spirit in various commercial enterprises. There was C. A. Coey and Company and the C. A. Coey Service Company; the Coey Auto Livery Company; the Coey School of Motoring; the American Travelers Coey Company; the Coey Motor Car Corporation; the Coey-Mitchell Automobile Company; the Wonder Motor Truck

Good News for Overweights

THE NEWEST AND SUREST WAY TO GROW THIN BY A NEW PROCESS

Why DYNELL WATER Takes Off Excess Fat

THE result of a year of careful investigation just out and now revealed for the first time.

The organic salts in such profusion and in such perfect solution in Dynell water, contrary to the tendency of most waters, are a natural stimulus to the metabolism of the system.

Their chemical re-actions in the protoplasm serve to exchange new and healthy materials for the sluggish and fat loaded surfaces. Their cathartic action in the blood is a continuous influence to oxidize surplus fat and eliminate it through natural channels.

To what extent it may influence those glandular secretions the deficiency of which is held to be largely responsible for obesity is conjecture, but a host of over-fat people have reduced to normal through no other means than by drinking Dynell Spring Water, hence experience is worth a lot more than theory when it comes to some of the mysteries of the human body. Its high content of magnesium sulphate is alone a fat reducer, second to none.

Its Sodium sulphate is a regulator of the body's water supply and is the standard treatment for dropsical affections. Its effect in the liver is specific. Its iron oxide is invaluable in fat reduction and all its other elements are highly active in combination to bring about a healthier condition of the tissues of the body.

Of one thing you may be sure, there is no danger in this form of reduction, no heart palpitation, no nervous re-actions, no skin eruptions. The reduction of fat is general throughout the system, it is natural and healthy reduction and is just gradual enough to enable the body to gain in health and strength as the excess fat gradually recedes.

Read the genuine letters from Chicago people and note the great benefit they have derived from this simple and pleasant way to grow thin —by simply drinking this pure, sparkling—tasteless—odorless—healthful Dynell Water, which is said to come by an underground system from far away Canada.

Company, and, finally, the Dynell Spring Water Company. Apparently, all of these concerns, except the last named, had an existence that was more or less evanescent, and disappeared into the limbo of the forgotten past.

Three or four years ago, a tentative effort seems to have been made to sell Dynell stock. Circulars were sent out to the public, stating that the Dynell Spring Water Company had had a cash offer of $300,000 for the property and that it was the intention of the syndicate making the offer to erect a large hotel, and, incidentally, to raise the price of Dynell water. The circular went on to state that, rather than sell out to the syndicate, the company would give its friends and customers an opportunity to become stockholders, so that the Dynell company could keep control of the spring in its own hands. The suggestion was that persons pay from $250 to $1,000, for which stock would be issued, and the purchaser would be permitted to get, without further charge, from $250 to $1,000 worth of Dynell water. The earnings at that time were said to be "over $75,000 a year clear profit," and that it seemed likely that the concern would be able "to pay a 25 per cent dividend on $300,000 capitalization."

Dynell water, if we are to believe the advertising—which is not advised—is the remedy *par excellence* for appendicitis, arthritis, asthma, Bright's disease, bladder trouble, and so on through the alphabet to ulcerated stomach and weak kidneys. According to an analysis made by the Chicago Laboratory, Dynell water has, for its chief active ingredients, sodium sulphate (Glauber's salt) and magnesium sulphate (epsom salt).

Naturally, testimonials play a large part in the exploitation of Dynell water. One of these, which appeared in a large display advertisement published in the Chicago *Tribune* of October 31, 1924, was from a Mr. Lawrence Heyworth, whose picture and puff made up the bulk of the two-column full-page *Tribune* advertisement. It has been said—with how much truth we do not know—that Mr. Heyworth has acted as "angel" for Mr. Coey and furnished at least some of the capital used by Mr. Coey in floating the business. Whether Mr. Heyworth's testimonial was prompted by a financial interest in the spring, or whether his interest in the spring was prompted by the enthusiasm his testimonial evidenced in the water, only Mr. Heyworth can say.

During the past few months, there has been reproduced in some of the Dynell advertising what are alleged to be testimonials of two physicians, who are members of the Chicago Medical Society. These physicians do not deny writing the testimonials but declare that the Dynell concern had no authority to use them.

In the same advertising there has been stressed a testimonial credited to William Hale Thompson, mayor of Chicago, and widely known in other ways. Mr. Thompson is quoted as saying:

"Your very fine Spring Water was received at my home several days ago. I just started using it and it certainly is the stuff."

Another interesting item in the Dynell testimonial field is one from Myrtle Freeman, 826 East Ninetieth Place, Chicago, who makes the statement that she had suffered from gallstones for months when her physician recommended Dynell water, and, since drinking Dynell, she thinks she is entirely cured. Bearing on this testimonial is another from Dr. Van E. Freeman of the same address. Dr. Freeman's testimonial has been featured in double-column full-page newspaper advertisements. The doctor is quoted as saying that he considers it "both a professional duty and a personal privilege" to recommend Dynell water, since the product "unquestionably was instrumental in breaking up a case of gallstones, under my observation."

About two years ago, when the "obesity cure" game was at its height, the Dynell people came out with a full-page advertisement in the Chicago *Tribune*, exploiting Dynell water as a cure for fatness. According to this advertisement, Mr. Coey had discovered "a safe, sure way to grow thin without drugs or a starvation diet," and the Dynell spring was described in very large, black letters as the "wonderful fat reducing water." The *Tribune* advertisement gave this explanation of the physiologic action of Dynell Spring Water in the reduction of obesity:

". . . it contains mineral salts in such profusion and in such perfect solution as to bring about a natural stimulus to the metabolism of the system. In other words, its natural properties serve to reduce fat, yet there are minerals contained which actually enrich the blood and keep the system in fine health and condition."

In view of this unimpeachable testimony from such authoritative sources, it is little short of *lèse-majesté* to be skeptical.

Handshaking.—Experiments show that bacteria are transferred from one hand to another during handshaking, sometimes to the fifth person; thus the handshake is a method of spreading disease. As the fingers are the part of the hand that usually touches the mouth, they are more active than the rest of the hand in transferring disease. The fingers of the first hand infect the back of the second; the back of the second hand infects the fingers of the third, and so on. Therefore the "take" hands in the odd numbered handshakes are likely to have the infective material on the fingers and therefore the hand of the third person is likely to be more dangerous to himself than the hand of the second person is to himself; but the hand of the second person is more dangerous to those with whom he shakes hands than the hands of the third person. If transfer of infection is made to the third, fourth or fifth person, there would be a large widening of the range of infection from a patient or "carrier" as the infected person might, by shaking hands, infect those with whom he shakes hands, and these in turn infect others to the third, fourth or fifth degree.—Mathews, Helen M.: *Pub. Health J.* **19**:426 (Sept.) 1928.

Correspondence

USE OF DENTAL FILM FOR X-RAY OF FINGER

To the Editor:—In THE JOURNAL, June 30, I noticed under Clinical Notes, Suggestions and New Instruments an interesting improved splint for baseball finger by Philip Lewin of Chicago. In this connection I would suggest the use of the dental film for anteroposterior and lateral views of such fingers. I have found this much more convenient than the larger sized film because it can readily be placed between the fingers for the lateral view, the expense is much less, it is much more convenient to develop, and it is not so heavy in the files. In this farming community we have a large number of injuries to fingers and hands arising from the fact that the average farmer is unskilled in the use of tools and is really awkward. Many of the injured are hired men and cannot afford the cost of larger films.

RALPH LOVELADY, M.D., Sidney, Iowa.

SPINAL ANESTHESIA

To the Editor:—In THE JOURNAL, July 21, page 192, you give a complete and satisfactory answer to the inquiry from the Bessesen Clinic as to the available statistics and mortality of spinal anesthesia, and comparative results with chloroform, ether, nitrous oxide and ethylene.

The last sentence of the first paragraph of these statistics does not seem to call for the rebuttal that was published in THE JOURNAL, August 18, page 514, over the signature of Gaston Labat, in which he states that patients *must* be placed in a Trendelenburg position immediately after the injection has been made. Perhaps he has not experimented recently with various positions or made a careful search of the literature and ascertained what other men have been doing. It seems to be almost too positive a statement, and the word *must* appears to be too assertive a term to use in the face of the evidence available.

The Lahey Clinic has been using the reverse Trendelenburg in all of its upper abdominal work for some time without any appreciable drop in blood pressure and no respiratory embarrassment (Sise, L. F.: *New England J. Med.*, July 12, p. 59, and personal communications).

Risacher and Waitz have been keeping their patients in a sitting posture for from fifteen to twenty minutes after injection of procaine into the subarachnoid space. Throughout the anesthetic the patient is kept in a semirecumbent position, with the head elevated from 20 to 25 degrees (*Bull. Soc. d'obst. et gynéc.* **16**:41 [Jan.] 1927), and the same technic is followed by Lantuéjoul (*Gynéc. et obst.* **9**:368 [April] 1924).

Peabody of the Henry Ford Hospital has used the reverse Trendelenburg position when procaine was dissolved in spinal fluid (*J. Bone & Joint Surg.* **9**:450 [July] 1927) and, with the use of ephedrine, experienced little or no circulatory changes. Recently he has become converted to a solution lighter than the spinal fluid, and employs a Trendelenburg position.

Hirschman and Corbett of Detroit invariably maintain their patients throughout the duration of the anesthetic in a semireclining position with the head and shoulders propped up on pillows.

I have 273 cases in which the patients have all been placed in a 20 to 25 degree reverse Trendelenburg, and in these cases it has never been necessary to administer any stimulant nor has the blood pressure ever fallen more than 20 points. Not infrequently the blood pressure is higher twenty minutes after induction than it was before the anesthetic was administered. Respiratory embarrassment has never occurred. A report of these cases will shortly appear.

The *Long Island Medical Journal*, October, 1927, p. 573, contained an article by Dr. Labat entitled "Circulatory Disturbances Associated with Subarachnoid Nerve Block," in which the author says: "The pulse at the wrist does not mean much clinically, because with the relaxed blood vessels in other territories the blood vessels that have not been interfered with by the anesthesia also have their walls relaxed, but through another cause, through impoverished circulation. When the waves created by the beats of the heart reach those blood vessels, they cannot be felt by the hand. They can neither be detected by the ear when they are subjected to the pressure of the rubber sleeve of any blood pressure apparatus." In the same article are innumerable illustrations showing that the blood gravitates to the dependent parts of the body, and, to overcome cerebral enemia, the patient must be maintained in a marked Trendelenburg position.

Might I ask how many of our professional friends would not become greatly alarmed if they were unable to detect a radial pulse, and had occasion to see the blood pressure register nothing over zero? If we cannot rely on the sphygmomanometer for measuring the blood pressure while using spinal anesthesia, please inform me what other method can be employed.

These teachings are entirely erroneous, and impressions of this character instilled into the minds of members of the profession have been and will continue to be a means of instilling skepticism and fear in surgeons rather than giving them confidence.

Blood Pressure with Spinal Anesthesia

Operation	Age of Patient	Blood Pressure: Before Anesthesia, Systolic	Before Anesthesia, Diastolic	During Anesthesia, Systolic	During Anesthesia, Diastolic	At Completion of Operation, Systolic	At Completion of Operation, Diastolic
Dr. Frank A. Kelly							
Cholecystectomy	60	120	60	114	84	118	76
Ruptured ectopic pregnancy	33	160	70	150	60	150	50
Carcinoma of rectum	57	102	64	130	74	112	72
Dr. Simon D. Ehrlich							
Tuberculosis of kidney	24	120	80	140	80	136	80
Appendectomy	28	110	80	114	70	124	60
Hemorrhoidectomy	48	108	60	108	60	125	70
Dr. Davis Baker							
Carcinoma of the uterus	44	120	64	120	70	120	70
Ventral hernia	56	125	68	120	64	120	70
Ruptured extra-uterine preg.	32	105	58	100	64	100	64
Dr. Lincoln F. Sise (Lahey Clinic)							
Cholecystectomy and hernia	44	135	60	140	60	124	60
Nephrectomy	43	130	84	140	90	130	80
Cholecystectomy	39	136	70	125	80	120	80
Dr. G. E. Garside (Percy Clinic)							
Cholecystectomy	32	130	80	140	85	138	85
Perineorrhaphy	36	128	78	135	80	130	80
Hysterectomy	44	136	85	145	88	140	85
Dr. A. I. Willinsky, Toronto, Canada							
Choledochotomy	41	110	60	128	68	120	70
Prostatectomy	64	156	80	172	84	160	74
Vaginal hysterectomy	38	122	64	140	70	136	68
Dr. M. D. Campbell							
Calculus in ureter	39	114	68	102	50	122	68
Renal calculus	48	110	80	120	68	120	72
Carcinoma of bladder	78	210	96	178	96	212	108
Dr. H. B. Pritchard							
Cholecystectomy	41	136	60	140	60	130	64
Prolapsed uterus	45	150	70	130	70	140	70
Panhysterectomy	42	130	80	140	70	110	60

When procaine is dissolved in spinal fluid and reinjected into the subarachnoid space, and the patient placed in a Trendelenburg position, not infrequently the anesthetic extends to the angle of the jaw, and the patient becomes pulseless and shows a marked pallor. When the abdominal incision is made, one observes that the wound is dry. Any one of these symptoms should be just cause for alarm.

With the proper technic, spinal anesthesia may be maintained with the patient either in the Trendelenburg or in the reverse Trendelenburg position without any appreciable change in the blood pressure, and without respiratory embarrassment or pallor. Not infrequently the blood pressure can be made to show a higher reading than before the anesthetic was administered. This has been conclusively proved by Sise, Kelly, Willinsky, Peabody, Campbell, Fraser, Baker and innumerable other operators.

To substantiate these observations may I cite in the accompanying table two or three cases from various operators collected at random from hundreds of inductions performed in some of our better known clinics using spinal anesthesia.

These reports from various operators working independently and in different localities of the country would seem to contradict entirely the communication of Dr. Labat which appeared in THE JOURNAL, August 18, and the article in the *Long Island Medical Journal* of October, 1927.

GEORGE P. PITKIN, M.D., Holy Name Hospital,
Teaneck, N. J.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

USE OF B. ACIDOPHILUS IN INFANTS

To the Editor:—Please publish the therapeutic value of bacillus acidophilus tablets in the treatment of diarrhea in infants. Is it possible to change the intestinal flora with these tablets? Please omit name.

M.D., Durant, Okla.

ANSWER.—Buttermilk was first used in Holland as a food for infants with intestinal disturbances. Later it was used with equal success in Germany. In this country when first used, sour milk was churned. Later, living cultures of lactic acid bacilli were added to sterilized sweet, whole or skim milk. More recently U. S. P. lactic acid has been used to acidify sweet skim or whole milk. The following appears in New and Nonofficial Remedies, 1928: There are many who believe that the regulation of types of bacteria and of bacterial activities in the intestine may be of much importance; evidence has been brought forward to show that the growth in the intestinal tract of the normally present aciduric bacteria may be increased so as to make them the predominating organisms by the administration of milk inoculated and fermented with *B. acidophilus*, by the administration of viable cultures of *B. acidophilus* in conjunction with liberal quantities of lactose or dextrin, or by the administration of these carbohydrates alone. No tablet claimed to contain *B. acidophilus* has been admitted to New and Nonofficial Remedies because no adequate evidence has been presented to show that implantation of *B. acidophilus* may be obtained through this use.

BISMUTH PREPARATIONS IN SYPHILIS

To the Editor:—Please give me information about water-soluble preparations of bismuth in the treatment of syphilis. 1. What is their ratio of efficacy as compared with arsenicals? 2. Are they regarded as good as the oil suspensions? 3. Are they as safe as the other two mentioned? 4. What are the contraindications and unfavorable reactions, if any? 5. What is the ordinary method used, including number and frequency of doses?

B. S. PENN, M.D., Humboldt, Iowa.

ANSWER.—1. In general the potency of the three antisyphilitic remedies, i. e., the arsenicals, bismuth and mercury compounds, is represented by the figures 10, 8 and 3.

2. Bismuth preparations are administered by intramuscular injection. Water-soluble bismuth preparations offer only slight advantages over oily suspensions. There is more rapid absorption and assimilation and less likelihood of cumulative effects. Pain from the injections may be alleviated by adding a few drops of 2 per cent butyn solution.

3. There is no marked difference in safety between bismuth preparations except that water-soluble compounds are perhaps more safe because insoluble deposits are not formed. In general, the bismuth compound is a safer drug than arsphenamine.

4. The chief contraindications to bismuth therapy are nephritis, tuberculosis, colitis and gingivitis. Unfavorable reactions are stomatitis with bismuth deposit on the gums, renal irritation with albuminuria, and gastro-intestinal disturbance with black stools. In severe cases of bismuth poisoning there is loss of

weight, fever, anemia, polyuria, toxic cutaneous eruptions, fetor with stomatitis, and intestinal symptoms.

5. Ordinarily bismuth compounds are given in doses representing from 0.5 to 0.1 Gm. of bismuth, every five to seven days to a person weighing 70 Kg. (154 pounds). From ten to twelve doses are given in a series. Smaller doses may be given twice weekly. The injections are given intramuscularly in the gluteal region. New and Nonofficial Remedies should be consulted for a statement of the dosage scheme recommended for each particular preparation.

PRIMARY CANCER OF THE LIVER

To the Editor:—Does primary cancer of the liver occur and how rare is it? At what age does hypertrophic cirrhosis of Hanot occur?

E. S. DUPUY, M.D., Beckley, W. Va.

ANSWER.—Primary carcinoma of the liver is a rare disease. Hale White (Allbutt's System of Medicine **4**:204, 1900) records eleven cases in 11,500 necropsies and gives the ratio of the primary to the secondary as 1:25.

Hanot's cirrhosis (hypertrophic biliary cirrhosis with chronic jaundice) occurs mostly between the twentieth and thirtieth years of life. It is said to be rare after the fortieth year, but to be quite common in children, especially in India. A juvenile type of this disease is recognized.

TREATMENT OF SYPHILITIC OPTIC ATROPHY

To the Editor:—What is the opinion of ophthalmologists as to the efficacy of treatment of syphilitic optic atrophy? Is the condition amenable to antisyphilitic treatment? Are arsenicals contraindicated? If not, are small or large doses indicated? Is there any contraindication to bismuth in this condition? Please omit name. M.D., Pittsburgh.

ANSWER.—In certain cases of syphilitic optic atrophy, the process can be brought to a standstill by vigorous antisyphilitic treatment and maintained there as long as the blood and spinal Wassermann reactions are negative. In other cases, when the optic atrophy is the sole prominent symptom of tabes dorsalis (possibly 10 per cent of the cases), antisyphilitic treatment is entirely without avail and the atrophy will progress to complete blindness within a year. The arsenical compounds seem to be contraindicated when the atrophy can be proved to be due to an active neuritis within the body of the nerve proper, as shown by paracentral and cecocentral scotomas. When indicated, such drugs should be started in small doses and increased frequently and rapidly. Bismuth compounds may be used in place of the arsenical compounds.

REACTION OF DIABETIC URINE

To the Editor:—So far as I know, all writers of textbooks on the practice of medicine state that the urine of diabetic persons is acid in reaction. Are we to infer from that that a neutral or an acid urine does not contain sugar? J. W. YANKEY, M.D., Mankato, Kan.

ANSWER.—The statement that "diabetic urine is acid in reaction" refers to the urine as it is passed. It occurs not infrequently that diabetic urine allowed to stand even for a short time in hot weather becomes alkaline. This, however, does not change the sugar reaction for ordinary purposes. There are certain changes in such a urine which are of no importance for the ordinary test.

INFECTIONS OF HANDS OF WORKERS IN ROCK SALT

To the Editor:—I am the company physician for a large ice cream company, and am at a loss as to the prevention of infection of the hands which is of frequent occurrence. The rock salt, which is used for the chief purpose of keeping the ice cream hard by lowering the melting point, somehow lowers the resistance of the tissues, so that any cut or abrasion is followed by infection. Could you recommend or suggest any preventive solution (i. e., antiseptic solution) that would sort of check these infections? What do you think of a weak solution of potassium permanganate or other antiseptic solutions?

HARRY N. STEIN, M.D., Passaic, N. J.

ANSWER.—Common salt is to be reckoned as an irritant. This is well known in salt making and purification in which industry many workers present perforated nasal septums as well as skin lesions. In tanneries the raw hides or skins are smeared with salt as a preservative. Exposure to the combination of putrefying hides and salt paves the way for skin infections in this industry.

The action of salt may be twofold. First, the salt in concentrations in excess of physiologic solution of sodium chloride acts through the withdrawal of fluids from the skin and thus increases the severity of abrasions and chaps. Skin resistance in this manner is lowered. Second, rock salt in particular, and all salts to a lesser degree, contain as impurities such other substances as calcium and magnesium chlorides. These may dissociate on the skin, leading to the formation of hydrochloric acid. This acid then becomes the responsible irritant.

In the prevention of this occupational dermatitis, the agents mentioned are not to be regarded as highly desirable. It is better to make use of protective bland ointments such as hydrous wool fat, U. S. P., or this in combination with borax. The application of such an ointment at the beginning of the work period and at the midday is likely to prove efficacious in warding off all lesions. If for any reason the ointment is objectionable, rinsing the hands two or more times daily in saturated water solutions of borax is desirable. Under these circumstances borax yields a nonirritating alkaline solution counteracting the salt.

In the presence of actual infected lesions, the antiseptics may serve helpfully in treatment.

PROTECTING SKIN OF WORKERS HANDLING CREOSOTED TIMBERS

To the Editor:—I have recently had several inquiries concerning methods of protecting the skin of workmen while handling creosoted timbers on warm days. It is a matter of common knowledge that under such conditions some men are quite susceptible to the creosote fumes and develop a skin burning very similar to sunburn. I have been told that covering the men's faces and hands with petrolatum or carron oil before they start to work with the creosoted wood will reduce or prevent this trouble. Can you give any suggestions or sources of information that would be helpful in this connection? I should also appreciate any information you might be able to give concerning permanent injury to workmen who are continuously engaged in the handling of creosote or creosoted timbers. I believe there are few if any authentic cases of serious or permanent injury to men in the wood creosoting industry, but my information may be incomplete. GEORGE M. HUNT, Madison, Wis.

ANSWER.—The term "creosote" as applied to substances used in wood treatment loosely covers a group of bituminous and tarry materials not all of which are "creosotes." At best these chemicals represent a heterogeneous mixture. In some wood treatment, substances unrelated to coal tar derivatives are utilized with these "creosotes," such as zinc chloride for fire repelling and fungicidal purposes. As a consequence, the skin irritants present are inconstant as to nature and quantity.

We do not recommend the use of lime liniment (carron oil) for protection. Petrolatum is so lacking in tenacity as to rub off the hands and faces of workmen. Highly purified and deodorized wool fat is better. A superfatted, nonirritating soap with wool fat as the superfatting agent, used as an insulating ointment for the skin, is preferable in that smaller quantities may be employed. This obviously does not protect the conjunctivae or mucous membranes, which tissues are susceptible particularly to action of aldehydes. Care should be exercised by workmen not to use irritants in cleaning up at the end of the day. Such agents as gasoline, naphtha or turpentine are not desirable. Bland, nonabrasive soaps are best. After scrubbing, the use of small quantities of any mild greasy substance, such as ointment of rose water or oil of theobroma, is an additional protective measure.

Direct contact with these wood preserving materials may be harmful. Zinc chloride in the presence of broken skin from splinters, abrasions or chaps is capable of producing deep, eroding, persistent ulcers. "Creosotes" produce an acute dermatitis similar in general aspects to poison ivy. The measures suggested have proved helpful. So far as possible, contact between skin and creosote materials should be avoided. Rubber gloves and ordinary fabric gloves are not practical. Special fabric gloves impervious to wood-treating materials are available and serviceable. When the skin is broken for any reason, special care is called for in sealing off against the entry of zinc chloride. An ointment of 10 per cent sodium bicarbonate in petrolatum has proved helpful.

The actuality of these lesions is attested to in the latest report from the Division of Industrial Hygiene of the Ohio State Department of Health, covering compensable diseases in Ohio, from June 30, 1925, to Dec. 31, 1927: This report states: "Creosote furnished another quite definite group of fifty-six cases; practically all were railroad section hands handling creosoted ties."

The harm from these several irritants that may be serious or semipermanent is as follows:

Zinc chloride ulcers may be so extensive as to expose tendons and bony tissues.

From prolonged exposure to "creosotes," the skin may become so exquisitely sensitive as to respond to merest traces of the irritants, and thus require a change in occupation. At times

the sensitization may be so marked as to cause the skin to erupt from other and trivial causes, such as laundry soap.

Rarely a skin cancer may be produced from these materials.

Many wood treating workers present skins that are pitted with hundreds of minute tarry plugs extending down into the microscopic skin openings. These follicles gradually distend. Eventually a low grade inflammation ensues, even though none of the acute conditions mentioned supervene.

Individual personal cleanliness is essential in this industry.

USE OF BISMUTH SUBNITRATE IN GONORRHEAL URETHRITIS

To the Editor:—In your opinion does bismuth subnitrate in a solution as commonly prescribed in a case of chronic posterior gonorrheal urethritis have any beneficial or antigonococcidal properties, or does the absorption of bismuth have any property of softening the infiltration from a chronic infected instrumentated urethra, a so-called one drop case? Please omit name.

M.D., Oklahoma.

ANSWER.—A suspension of bismuth subnitrate in water is recommended by Finger according to the following formula:

Bismuth subnitrate	5 Gm.
Distilled water	ad. 200 cc.

for the so-called terminal catarrh in gonorrhea. Its action is chiefly that of an astringent. It is to be used after the gonococci are no longer present in the secretion. Bismuth subnitrate, however, undoubtedly has also a bactericidal effect when coming in direct contact with minute ulcerations, which often occur in the urethra incidental to gonorrheal infection. It has no effect on infiltrative processes in the urethra.

POSSIBLE POISONING FROM WELL KNOWN RUBBER CURING ACCELERATORS

To the Editor:—Under separate cover I am sending samples of two powders used in a local plant in the curing of rubber. One they called "Diortho" and is so labeled, and the other is known as "aniline powder" at the plant. In addition, considerable carbon block is used. Perhaps you are already familiar with these powders through previous experience. My purpose in writing is to find out, if I can, whether or not either of these or a combination would cause poisoning by inhalation. I have a patient, a white man, aged 33, who works in the curing room of the rubber plant and pulls hot slabs of cured rubber off hot rolls. He has been losing in weight and strength for the past two months and becomes so tired that he can hardly work. I have examined him carefully on several occasions and can find nothing to explain the symptoms except a blood pressure of 110 systolic and 70 diastolic and an anemia of 3,324,000 red cells, with a hemoglobin of 80 per cent. The white cells number 7,750, with no abnormalities in the smear. At times the tired feeling is worse than others, and on these occasions the urine is very highly pigmented with bile pigment. Tests for bile salts were absent. The blood count has been done on several occasions and has been found to be essentially the same. On other occasions also the urine has been found to be free of bile pigments, albumin and sugar and microscopically without casts or red cells. Incidentally, several sputums have been negative, and on two different occasions he has taken his temperature every four hours for several days and there has been no elevation. Although there are two exhaust fans in the room, he tells me that particularly when there is being used the substance called "Diortho" the men choke and gasp for air and frequently have to run to the windows to breathe. On one occasion this man had an attack of syncope at work and at another time just after he reached home. I have been considering the possibility of either an aniline dye poisoning or a recurring carbon monoxide poisoning. If this seems to be the difficulty, the man is willing to give up a good paying job and try to get work elsewhere for the sake of his health. Please omit name.

M.D., Ohio.

ANSWER.—An examination of the samples made for THE JOURNAL by a chemist associated with the rubber industry indicates that the compound marked "Diortho" is diortho-tolylguanidine ($CH_3C_6H_4NH)_2C:NH$, melting point 173 C. The other compound, known as "aniline powder," is thiocarbanilide or Diphenyl-thiourea ($C_6H_5NH)_2CS$, melting point 150 C. The first compound, diortho-tolyl-quanidine, is used in quite large quantities in the rubber industry and is said to be nontoxic. The latter compound was widely used at one time and if properly handled is not supposed to cause any trouble. There have been cases of slight poisoning, however, from the handling of this material. If it contains an excess of aniline, of course a person handling it would be subject to aniline poisoning, which is serious. It is possible that both of these materials are not being handled properly in the factory. They must not be allowed to get into the air in the form of a fine dust because any of these materials, whether toxic in themselves or not, will settle in the throat and lungs and cause choking.

If the members of the firm employing this man are fully aware of his condition and the possibility of trouble due to these compounds, they ought to be willing to change their formulas to some of the numerous nontoxic accelerators which are now on the market. They could at least transfer him into some other department apart from the mill room. It is also possible that this individual may be sensitive to these types of compounds and therefore it would be absolutely necessary that he give up his job and seek work elsewhere if the company cannot find work for him in another department.

CONVALESCENT SERUM FOR POLIOMYELITIS

To the Editor:—In the treatment of acute poliomyelitis with convalescent serum, what does the word convalescent mean, in time? Can we use it as soon as the convalescent patient is free from fever, and for how long after the onset of the disease is the word convalescent used? In other words, is the serum of an individual who had the disease two years ago still of value as a remedy in an acute case?

A. F. KAESER, Highland, Ill.

ANSWER.—The convalescent serum used last year in Massachusetts was pooled serum, obtained from any one who had definite evidence of having passed through an attack of poliomyelitis. Serum was not collected in acute cases until all muscle tenderness had disappeared. The serum from an individual who had had the disease two years previously would in all probability be effective, as in several instances the pooled serum collected as stated neutralized virus of the disease in dilutions as high as 1:20.

TREATMENT OF SACRO-ILIAC ARTHRITIS

To the Editor:—I have a patient who has been suffering from pain in the region of the right sacro-iliac joint for about four months. The patient does not recall any trauma, but had influenza just previous to the appearance of the pains. The condition has become aggravated in the last two months, so that it interferes with sitting for a long time. The x-ray film reveals arthritis of the right sacro-iliac joint. The patient, who is a man of 30, was in perfect health before and shows no signs of any other disease. Salicylates and bakings do not give any result. Will you kindly advise me as to the treatment of this case, if immobilization, rest or bathing in sulphur or salt water would be advisable? In the last case, which of the bathing resorts and watering places in New Jersey or New York state would you recommend? I would appreciate references to the literature on the subject. Please omit name.

J. C., New York.

ANSWER.—If this is a purulent sacro-iliac joint, it should be drained; if nonpurulent sacro-iliac arthritis, the application of leg traction, by means of adhesive bands, straps and a weight pulley with the head of the bed elevated should afford much relief. At the end of a variable period of from two to four weeks, a plaster-of-paris spica cast should be applied, immobilizing this entire area. Walking should be allowed with two crutches and a 2 inch block under the heel and sole of the shoe of the opposite side. A fusion operation of this area is indicated in many of these cases, but this should not be carried out except by a reliable orthopedic surgeon.

ABSORPTION OF EPINEPHRINE

To the Editor:—My opinion is that, except for some slight absorption by the mucous membranes of the buccal cavity, epinephrine is not absorbed from the gastro-intestinal tract and does not exhibit systemic action when taken in that way. If I am not mistaken, I think that the drug is thought to be destroyed by the digestive ferments and thus rendered inert. Perhaps you will be kind enough to arbitrate this little argument that I am having with a local colleague regarding the action of epinephrine when taken by mouth.

NORBORNE R. CLARK, JR., Mobile, Ala.

ANSWER.—To say that systemic effects do not occur after alimentary administration of epinephrine or its salts is unjustified. If changes in blood pressure are the systemic effects thought of by our correspondent, then he will be generally considered correct provided the quantity of epinephrine is small. With large doses changes do occur, but in all likelihood these are largely due to reflexes arising from the acute local action of epinephrine on the gastric mucosa. There is no fundamental reason why epinephrine may not be absorbed from the stomach since the substance is stable in an acid medium and since it affects blood vessels in subcutaneous areas as in the stomach. We should expect some systemic effects provided the quantity given is sufficiently large and provided it is not too quickly passed into the intestine. Oliver and Shäfer (*J. Physiol.* **9**:17, 1895) found that pepsin and hydrochloric acid had no effect on epinephrine. Meltzer (*Am. J. Physiol.* **11**:37, 1904) observed an epinephrine response in the sensitized cat's iris after administration of 6 mg. of epinephrine with food. Herter and Wakeman (*Virchows Arch. f. path. Anat.* **169**:479, 1902) found that 30 mg. by mouth produced glycosuria in dogs. Rectal administration of epinephrine is far more effective than gastric administration. This is explained on the basis of hepatic destruction, since blood from the stomach goes by way of the portal vein to the liver whereas rectal venous blood goes into the vena cava.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMOLOGY: St. Louis, Oct. 15. Sec., Dr. William H. Wilder, 122 So. Michigan Ave., Chicago.

AMERICAN BOARD FOR OTOLARYNGOLOGY: New York, Oct. 11 and St. Louis, Oct. 15. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha, Neb.

CALIFORNIA: Sacramento, Oct. 15-18. Sec., Dr. Charles B. Pinkham, 908 Forum Bldg., Sacramento, Calif.

COLORADO: Denver, Oct. 2, 1928. Sec., Dr. Philip Work, 324 Metropolitan Bldg., Denver, Colo.

CONNECTICUT—Healing Arts (Basic Science): New Haven, Oct. 13. Address—State Board of Healing Arts, Box 1895, Yale Station, New Haven, Conn.

GEORGIA: Atlanta, Oct. 9-10. Sec., Dr. B. T. Wise, Americus, Ga.

IDAHO: Boise, Oct. 2, 1928. Commissioner of Law Enforcement, Hon. F. E. Lukens, Boise, Idaho.

ILLINOIS: Chicago, Oct. 2-4, 1928. Supt. of Registration, Mr. V. C. Michels, Dept. of Regis. and Edu., Springfield, Ill.

KANSAS: Topeka, Oct. 9. Sec., Dr. Albert S. Ross, Sabetha, Kan.

MICHIGAN: Lansing, Oct. 9-11. Sec., Dr. Guy L. Connor, 707-708 Stroh Bldg., Detroit, Mich.

MINNESOTA — Basic Science: Minneapolis, Oct. 2, 1928. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., U. of Minn., Minneapolis, Minn.

MINNESOTA—REGULAR: Minneapolis, Oct. 16-18. Sec., Dr. A. E. Comstock, 524 Lowry Medical Arts Bldg., St. Paul, Minn.

MONTANA: Helena, Oct. 2-4, 1928. Sec., Dr. S. A. Cooney, Power Block, Helena, Mont.

NEW JERSEY: Trenton, Oct. 16. Sec., Dr. Charles B. Kelley, 30 West State St., Trenton, N. J.

NEW MEXICO: Santa Fe, Oct. 8-9. Sec., Dr. W. T. Joyner, Roswell, New Mex.

NEW YORK: New York, Albany, Syracuse and Buffalo, Sept. 17-20. Chief of State Department of Education, Mr. H. J. Hamilton, Educational Bldg., Albany, N. Y.

RHODE ISLAND: Providence, Oct. 4-5. Sec., Dr. B. U. Richards, State House, Providence, R. I.

Mississippi June Examination

Dr. Felix J. Underwood, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, June 21-22, 1928. The examination covered 12 subjects and included 96 questions. An average of 75 per cent was required to pass. There were 24 candidates examined, and all passed. Seventeen physicians were licensed by reciprocity with other states. The following colleges were represented:

College	PASSED Year Grad.	Per Cent
Emory University School of Medicine	(1926)	83
Northwestern University Medical School	(1928)*	83.8
University of Louisville School of Medicine	(1928)	90.6
Tulane University of Louisiana School of Medicine	(1928)	85, 85.4, 86.9, 87.9, 89.6, 93.8
Johns Hopkins University School of Medicine	(1926)	91
Jefferson Medical College of Philadelphia	(1928)	85.6
University of Pennsylvania School of Medicine	(1928)	87.7
Meharry Medical College	(1928)	86.9
Univ. of Tenn. College of Medicine	(1928)	84, 85, 88, 88.6, 89
Vanderbilt University School of Medicine	(1928)	83.7, 85.8, 88, 89.7
University of Virginia Department of Medicine	(1928)	91
Nongraduate		75.1†

College	LICENSED BY RECIPROCITY Year Grad.	Reciprocity with
Howard University School of Medicine	(1927)	Dist. Colum.
Emory University School of Medicine	(1924)	Georgia
Rush Medical College	(1928)	Illinois
Tulane University of Louisiana School of Medicine	(1922)	Louisiana
Meharry Medical College	(1903) Arkansas (1906) (1923) (1927)	Tennessee
Memphis Hospital Medical College	(1891) (1902) (1913)	Alabama
University of Tennessee Coll. of Med.	(1926) (2), (1927) (2)	Tennessee
Vanderbilt Univ. School of Medicine	(1921)	Tennessee
University of Virginia Dept. of Medicine	(1926)	Virginia

* Not a graduate until June, 1929, when he finishes his year of internship.

† Licensed through special legislation. License not subject to reciprocity with other states.

Iowa February-June Reciprocity Report

Mr. H. W. Grefe, director of examinations and licensure in Iowa, reports nine physicians licensed by reciprocity in the period from February to June, 1928. The following colleges were represented:

College	LICENSED BY RECIPROCITY Year Grad.	Reciprocity with
University of Illinois College of Medicine	(1927)	Illinois
Medical College of Indiana	(1899)	Indiana
St. Louis University School of Medicine	(1926), (1927)	Missouri
University of Nebraska College of Medicine	(1927)	Nebraska
Temple University School of Medicine	(1919)	Penna.
Vanderbilt University School of Medicine	(1916)	Tennessee
Victoria University Medical Department	(1892)	Minnesota
University of Budapest, Hungary	(1921)*	Missouri

* Verification of graduation in process.

Book Notices

HANDBUCH DER PATHOGENEN MIKROORGANISMEN. Herausgegeben von W. Kolle, R. Kraus, und P. Uhlenhuth. Lieferung 18, Band V. Immunität Serumtherapie und Schutzimpfung bei Diphtherie. Von Prof. Dr. E. Wernicke, und Dr. H. Schmidt. Bacillus fusiformis. Von Prof. Dr. H. A. Gins. Tuberkulose: 1. Tuberkelbacillen. Von Prof. Dr. B. Möllers; 2. Pathologie, Infektionswege und Infektionsquellen. Von Prof. Dr. H. Selter, und Dr. W. Blumenberg. Tuberkuloseimmunität. Von Prof. Dr. E. Löwenstein. Ueber die Grundlagen der Schutzimpfung gegen Tuberkulose nach Calmette mit B C G. Von Prof. Dr. R. Kraus. Die Anwendung des Tuberkulins beim Menschen. Von Prof. Dr. E. Löwenstein. Die Tuberkulinimpfung bei Haustieren und die Schutzimpfung gegen die Rindertuberkulose. Von Prof. D. W. Zwick, und Dr. med. vet. J. Witte. Third edition. Paper. Price, 38 marks. Pp. 525-1036, with illustrations. Jena: Gustav Fischer, 1928.

This section contains good articles on serum therapy and protective inoculation in diphtheria and on the organism found in Vincent's angina (*Bacillus fusiformis*). The major portion of the section (420 pages) is devoted to tuberculosis (tubercle bacilli, Möllers; pathology, sources and modes of infection, Selter and Blumenberg; immunity, Löwenstein; the Calmette inoculation method, Kraus; the use of tuberculin in man, Löwenstein; tuberculin inoculation in domestic animals and the protective inoculation for cattle, Zwick and Witte. The generally high level of the handbook seems to be maintained throughout. The work of American investigators is liberally cited, but it is not apparent that any of the writers are acquainted with the fine monograph on the chemistry of tuberculosis by Wells, DeWitt and Long, published in 1923.

DISEASES OF THE SKIN. By Richard L. Sutton, M.D., Sc.D., LL.D., Professor of Diseases of the Skin, University of Kansas School of Medicine. Seventh edition. Cloth. Price, $12. Pp. 1394, with 1248 illustrations. St. Louis: C. V. Mosby Company, 1928.

Of Sutton's book it may be truthfully said that year by year, in every way, it is growing bigger and better. Apparently the recent advances in dermatologic knowledge have been sufficient to stimulate the author's feverish productivity to the tertian type, the last edition having appeared in 1926. The present volume shows the evidence of a thorough revision. Of especial interest are the reproductions of histologic preparations and cultures from the collection of Dr. Frederick M. Weidman. The photomicrographs contributed by Richard L. Sutton, Jr., and Dr. Stuart Way are commendable. Much new illustrative material has been culled from all corners of the globe. It is not too much to say that Sutton deserves a high rank among the dermatologic nimrods for his skill and zeal in collecting and bagging rare cutaneous specimens.

DIE ERKRANKUNGEN DER BLUTDRÜSEN. Von Professor Dr. Wilhelm Falta. Second edition. Paper. Price, 42 marks. Pp. 568, with 107 illustrations. Berlin: Julius Springer, 1928.

The second edition of this monograph can be highly recommended as a textbook of the clinical phases of endocrine dyscrasia. The results of experimental work, as stated in the preface, have been introduced only as seemed necessary and pertinent to the understanding of the clinical subjects. The pancreas and insulin, however, are touched on only in the discussion of the thyroid, suprarenal, hypophysis and obesity. The author is publishing a separate volume on diabetes mellitus. The first 110 pages comprise an introduction, taking up the relation of the endocrine glands to one another, the sympathetic nervous system, metabolism and the various organs. The remaining 384 pages present the syndromes peculiar to the organs of internal secretion. The thyroid disturbances are acceptably classified. It is gratifying to note that adenoma and hyperplasia of the thyroid with symptoms of hyperthyroidism are grouped as different phases of the same dysfunction, as advocated by Aschoff and Rienhoff. Subtotal thyroidectomy is recommended as the most conclusive treatment for hyperthyroidism. The parathyroids and their relation to calcium ionization are well presented. The thymus is not assigned a definite function because of lack of evidence. A clear and modern conception of the hypophysis and its relation to the base of the brain is given. To the anterior lobe is attributed control over growth. An interrelation between the secretion of the posterior lobe and the adjacent base of the brain is shown,

and the two factors are ascribed concomitant contributing control over water excretion, glycosuria, gonadal function and obesity. Zondek's theory of the influence of the posterior lobe of the hypophysis on the gonads is upheld. The pineal gland and the results of its hypertrophy are illustrated by case records. The independence of the suprarenal cortex and medulla is carefully explained. Cannon's theory of epinephrine in emergencies, a theory now being questioned in this country, is given full credence. The gonadal dysfunctions are presented in brief. It is encouraging to note that pluriglandular diseases are confined to only seventeen pages and the subject is minimized. The author believes that the majority of endocrine illnesses are predominantly of one type. Disturbances of nutrition are taken up as a separate chapter. The author considers fattening by insulin as a genuine increase in weight and not merely an edematous change. A complete bibliography of sixty-three pages closes the monograph. This includes references from the German, French, American, English, Italian and others, although, of course, predominantly German references. The author has taken the time to read, appraise and credit works of merit wherever present. The paper is excellent, the binding and printing are good, and the illustrations are well selected and sufficient.

RECENT ADVANCES IN ANATOMY. By H. Woollard, M.D., Elder Professor of Anatomy, University of Adelaide. Cloth. Price, $3.50. Pp. 302, with 73 illustrations. Philadelphia: P. Blakiston's Son & Company, 1927.

This is an excellent statement of recent advances in an interesting and important part of anatomic research. The object of all anatomic study is an understanding of the structure and properties of living tissues, and researches of this nature are presented in this book with such clearness and critical appreciation that general readers can survey the fields which a few segregated specialists have tilled. Like many specialists, they have been generally unappreciated but they have obtained results. Dr. Woollard reviews work on individual living cells, their chromosomes, and mitochondria; tissue culture; the phenomena of the reproductive cycle in the female; the growth centers and organizers of the early embryo; vital staining and the great science of hematology, which began with Ehrlich and grew marvelously during this century; the red nucleus, the labyrinth, the sympathetic nervous system, the cerebellum and other mechanisms concerned with muscle tone and posture; the mechanisms of sensation, and the revelations of x-ray investigation in bones and viscera. These are important and significant studies and every one who watches the growing points of science will find the little book deeply interesting and valuable. Professor Woollard is an Englishman transplanted to Australia. He states that "recent anatomy is much indebted to the energy and outlook of American anatomists." The work of Bensley, Chambers, Corner, Evans, Herrick, the Lewises, Maximow, Ranson, Sabin and other Americans is reviewed at length.

THE TREATMENT OF CATARACT AND SOME OTHER COMMON OCULAR AFFECTIONS. By Lieut.-Colonel Henry Smith, C.I.E., B.A., M.D. Cloth. Price, 15/6d. net. Pp. 287, with 68 illustrations. London: Butterworth & Company, 1928.

An experience gained by operating on fifty thousand cataracts is not negligible. The views expressed by Colonel Smith deserve serious consideration, though they are radically opposed to the views that have gained universal ophthalmic acceptance with time, experience, experimental work, and usage. On page 4 is the pregnant sentence "The naked eye, if trained, leaves exceedingly little in cataract for other instruments of observation to discover." Practically no mention is made throughout of the accurate instruments of observation in common use throughout the clinics of the civilized world. The crude methods may suffice in the outposts of India, but why endeavor to foist those methods on clinics that abandoned such methods decades ago? The main portion of the book is devoted to a more or less chatty description and discussion of the so-called Indian method of expression of the cataractous lens within its capsule. The earnestness of the Colonel is best shown by a paragraph on page 123: "In my opinion, the time is now not far distant when Daviel's operation will be but a tradition of the Fathers, and when Barraquer's vacuum spoon will share a shelf in the museum with all the varieties of Kalt forceps, there to be inspected as objects of historical interest. For the two methods which I have described of delivering the soft and hard lens as 'tumblers' by external pressure alone are so simple and so efficient that they are bound to prevail the world over." The seventeen pages of Chapter V are given to the treatment of glaucoma, trachoma, iritis and several other conditions; if an undergraduate had written them, he would have been flunked. Barraquer's operation is analyzed by Dr. J. Russel Smith in some thirty-four pages and sweepingly condemned with vague aspersions on the honesty of the Barraquer reports. (This is reprinted from the *British Journal of Ophthalmology*). In the appendix are reprints of articles by Lister and Knapp which do not plead the colonel's cause with any great degree of violence. There is also an interesting chapter on lens couching, together with a first hand description of an operation performed on a cadaver eye by an Indian lens coucher. The printing of the book is indifferent and the proof needs much rereading. There is a profusion of black and white sketch illustrations, mostly diagrammatic, presumably by Vail; some are excellent and much to the point while others are merely space fillers. Nevertheless the book will probably have a large sale and will undoubtedly arouse two types of emotion among the readers. The inexperienced ophthalmic surgeons will read and believe and, on attempting to practice the maxims, will wallow in vitreous until experience has ripened them. The experienced ophthalmic surgeon will proceed promptly to anger at the large assortment of statements that confront him which are at variance with his experience and knowledge.

BACTERIOLOGY FOR NURSES. By Charles F. Carter, B.S., M.D., Director, Terrell-Carter Laboratory, Dallas, Texas. Cloth. Price, $2.25. Pp. 213, with 44 illustrations. St. Louis: C. V. Mosby Company, 1928.

This book has been prepared in accordance with recommendations of the National League of Nursing Education. It is well written and contains a sufficient amount of material for the usual course in bacteriology offered to nurses. The intimation that bacteria, yeasts and molds are degenerate plants seems doubtful and the lack of reference to the pathogenic yeasts is regrettable. The chapter on useful bacteria will help to counteract the too prevalent idea that all germs are harmful. The book can be favorably recommended.

INNERE SEKRETION UND KRANKHEITEN DES OHRES UND DER OBEREN LUFT- UND SEISEWEGE. Von Privatdozent Dr. Hans Leicher, Oberazt der Universitäts-Hals- und Nasenklinik zu Frankfurt am Main. Paper. Price, 12 marks. Pp. 1285-1413, with 44 illustrations. Leipzig: Curt Kabitzsch, 1928.

This monograph is taken from the third volume of the Handbuch der inneren Sekretion, published by Dr. Max Hirsch, Berlin. During the last ten or fifteen years, endocrinology has aroused a great deal of interest and, as stated by the author, much less attention has been given to the influence of the organs of internal secretion on the ear, nose and throat than on most other parts of the body. This brochure covers the ear, nose, nasal accessory sinuses, larynx, trachea and esophagus, as affected by such diseases as endemic cretinism, myxedema, acromegaly, otosclerosis and diabetes mellitus. It takes up in a systematic manner each separate section, and so far as possible gives an historical review of the pathology, histologic anatomy and therapy. In endemic cretinism, functional testing of hearing in the vast majority of cases shows the symptom complex of an inner ear involvement, with shortening of bone conduction, and lateralization of the Weber test to the better hearing side. The section on otosclerosis is especially interesting in view of the efforts now being made to find the cause and, if so, the therapy of this dreaded condition. Leicher calls attention to the phenomenon said to be often observed in the blood serum of patients with otosclerosis, namely, the presence of toxic substances that have inhibiting influences on the growth of seedlings when the serum is added to the water in which the plants are immersed. As a matter of therapy many general speculations are indulged in, whereas it is well known, particularly with reference to otosclerosis, that treatment as yet is almost futile. This monograph is well written, nicely illustrated, and well worth the reading not only for the value of its information but also for the stimulation it gives to further studies of the relation of the glands of internal secretion to the physiology and pathology of the ear, nose and throat.

DISEASES OF THE THROAT, NOSE AND EAR. Volumes I and II. By Dan McKenzie, M.D., F.R.C.S.E., Surgeon, Central London Throat and Ear Hospital. Second edition. Cloth. Price, $17 per set. Pp. 677, with 254 illustrations. St. Louis: C. V. Mosby Company, 1928.

The first volume of the new edition of this well known work covers history taking and general pathology, together with examination of the mouth, throat and larynx as well as a discussion of diseases of the larynx, trachea and thyroid, esophagus and nose. The second volume covers examination and diseases of the nasal accessory sinuses, nasopharynx, examination of the ear, various aural diseases, among them otosclerosis and acoustic tumor, diseases of the mouth, and the subject of the lymphatic vessels and glands of the head and neck, together with ligation of the external carotid artery and neck dissections. There are many useful and clear illustrations. In view of the number of pages, it seems that, if thinner paper had been used, the work could have been published in one volume, which would be much easier to manipulate, or at least more convenient. The text is well written and the author makes his statements clear and precise, with the usual custom of most English writers. Much emphasis is laid on the application of the essential principles of practice used in otolaryngology. Much attention to detail is given with reference to the technic of history taking, a subject that is much neglected by many authors and practitioners of medicine. A number of new topics are introduced into the book, such as shell shock deafness, and surgical technic in the ligation of the carotid, the latter a subject that is usually not included in books on the ear, nose and throat. The functional testing of hearing is given in a rather abbreviated form, and in the discussion of malingering the Stenger test is not even mentioned. This is one of the most valuable tests ever devised, and it seems strange that so many textbooks on otology omit all consideration of it. With reference to myringotomy, the author states that "a fine grade of gauze is passed by the meatus through the incision in the membrane into the middle ear." This would seem a most difficult thing to do since the incision is so fine a one, and it is doubtful whether it would be of practical value, for drainage would seem to be more impeded than promoted. As is so often noted in English and continental textbooks, many prescriptions are given for use in various conditions. This fact, together with the clear method of history taking as an aid in diagnosis, is one of the striking features of this excellent work.

THE PRINCIPLES OF INFANT NUTRITION AND THEIR PRACTICAL APPLICATION. By K. H. Tallerman, M.C., M.D., M.R.C.P., First Assistant and Registrar, Children's Department, London Hospital, and C. K. J. Hamilton, M.C., B.M., M.R.C.P., Physician in Charge of the Children's Department, Charing Cross Hospital. Cloth. Price, 10s. net. Pp. 183. London: William Heinemann, 1928.

The object of this book, according to the authors, is to discuss the principles underlying nutrition during infancy and to point out their importance and practical application in infant feeding, and to discuss the digestive disorders of infancy together with their appropriate treatment. There is also an appendix with recipes for the ordinary foods in the infant's diet, and a table of milk dilutions and calories at various ages and weights of the infant to assist in prescribing simple milk mixtures. A bibliography is appended at the end of each chapter, although there are no direct references in the text. The contents of the book are elementary, and apparently it is intended mainly for the student and general practitioner. The book may perhaps fill a needed gap in English medical literature but certainly not in American. The subject matter is covered even more thoroughly and clearly in several American books on infant nutrition and feeding. Although several satisfactory classifications of nutritional disturbances can be found both in German and in American literature, these authors attempt another one, using the term dyspepsia in an unwieldy and confusing sense. The deficiency diseases are briefly mentioned. The caloric method of feeding is advocated, and, although the authors state that no definite method of feeding is elaborated on except possibly the trial and error, a table of milk dilutions is published which harks back to the days when physicians carried charts with them to be consulted when prescribing a feeding formula. The chapters on breast feeding and disturbances of the breast-fed infant are good. This book does not compare favorably with other books on the same subject.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

YOUR HEART AND YOU. By Robert William Langley, A.B., M.D., Cardiac Consulting Board, Los Angeles Public Schools. Cloth. Price, $1.50. Pp. 59, with illustrations. Los Angeles: Wetzel Publishing Company, 1928.

Author's own handbook of advice to patients with heart disease.

WHEAT FLOUR AND DIET. By C. O. Swanson, Ph.D., Professor and Head Department of Milling Industry, Kansas State Agricultural College. Cloth. Price, $2.50. Pp. 203, with illustrations. New York: Macmillan Company, 1928.

A scientific attempt to combat fads and notions about white bread.

JUDGMENT AND REASONING IN THE CHILD. By Jean Piaget, Doctor of Science, Director of the Institut Rousseau and Professor at the University of Geneva. Translated by Marjorie Warden. Cloth. Price, $3.75. Pp. 260. New York: Harcourt, Brace & Company, 1928.

A test of the child's ability to think reasonably—and when.

SURGICAL ANATOMY. By Grant Massie, M.B., M.S., F.R.C.S., Senior Demonstrator of Anatomy and Surgical Tutor, Guy's Hospital Medical School. Cloth. Price, $5.50. Pp. 413, with 121 illustrations. Philadelphia: Lea & Febiger, 1928.

Standard textbook, quite brief, on surgical landmarks.

THE OPIUM PROBLEM. By Charles E. Terry, M.D., and Mildred Pellens. Cloth. Pp. 1042, with illustrations. New York: Committee on Drug Addictions, 1928.

Thorough consideration of the present status of drug addiction and the campaign for control.

SOLUBILITIES OF INORGANIC AND ORGANIC COMPOUNDS. A Compilation of Quantitative Solubility Data from the Periodical Literature. By Atherton Seidell, Ph.D., Hygienic Laboratory, U. S. Public Health Service, Washington, D. C. Supplement to the second edition containing data published during the years 1917-1926, inclusive. Cloth. Price, $8. Pp. 1001-1571. New York: D. Van Nostrand Company, Inc., 1928.

NOUVEAU PRÉCIS DE BACTÉRIOLOGIE. Par G. Delater, directeur de laboratoire de recherches biologiques de l'Ecole dentaire de Paris, et Ch. Grandclaude, directeur du laboratoire de recherches biologiques de l'Ecole odontotechnique. Cloth. Price, 50 francs. Pp. 124, with illustrations. Paris: Gauthier-Villars & Cie, 1928.

REPORT OF AN INQUIRY INTO THE AFTER-HISTORIES OF PERSONS ATTACKED BY ENCEPHALITIS LETHARGICA. By Allan C. Parsons, M.R.C.S. Reports on Public Health and Medical Subjects, No. 49. Ministry of Health. Paper. Price, 4s. 6d. net. Pp. 204. London: His Majesty's Stationery Office, 1928.

BIOLOGICAL AND SEROLOGICAL STUDY OF ALBUMINURIA. By I. Asai. Monographiae Actorum Dermatologicorum, C. Series Urologica. No. 1. Jan. 1928. Paper. Pp. 66. Japan: Imperial University, 1928.

LES ORDONNANCES DU MÉDECIN PRATICIEN. Par MM. Abbatucci, Bellot, Bozo, Brocq, etc., etc. Paper. Price, 45 francs. Pp. 515, with 2 illustrations. Paris: Masson & Cie, 1928.

CONTRIBUTION A L'ÉTUDE DES SPIROCHÉTIDÉS. Tome I. Par le Dr. Auguste Pettit, professeur a l'Institut Pasteur. Paper. Price, 80 francs. Pp. 267, with illustrations. Vanves, 1928.

THE SANITARY DISTRICT OF CHICAGO. Chief Engineer's Report and Recommendations to the Board of Trustees for the Year 1928. Paper. Pp. 89, with illustrations. Chicago, 1928.

TRANSACTIONS OF THE LUZERNE COUNTY MEDICAL SOCIETY FOR THE YEAR ENDING DECEMBER 31, 1926 and 1927. Volume XXVI and XXVII. Paper. Pp. 365. Wilkes-Barre, 1927.

ESPIROQUETOSIS RESPIRATORIAS EN ESPAÑA. Por Pedro Moreno Luzuriaga. Tesis de Doctorado. Paper. Pp. 72, with 17 illustrations. Pamplona: La Acción Social, 1927.

THE REPORT ON SANOCRYSIN (MØLLGAARD) INVESTIGATION. The Sanocrysin Research Committee of Japan. Paper. Pp. 73, with illustrations. Hongo, Tokyo, 1927.

NARCOTICA. Bewerkt door Prof. Dr. L. van Italiie, Prof. Dr. W. Storm van Leeuwen en E. Arrias. Paper. Pp. 134, with illustrations. Leiden, 1928.

PARALYZING THE CHILD. By George Draper, M.D. Paper. Pp. 12. New York: Croydon Press, Inc., 1928.

Medicolegal

Operation to Procure an Abortion on Woman Claiming to Be Not Pregnant; Conviction

(State v. Gardowski (N. J.), 140 Atl. 249)

The defendant, Gardowski, was convicted in the Court of Quarter Sessions, Burlington County, N. J., of operating with instruments, Jan. 22, 24 and 26, 1927, with intent to procure the miscarriage of a certain woman, referred to below as the prosecuting witness. On writ of error the defendant carried the case to the supreme court of the state. There she argued, among matters irrelevant for present purposes, that the crime, if any, was not committed on January 22, 24 and 26 in Burlington County, as charged in the indictment, but was committed on January 19 in Mercer County. She cited the testimony of the prosecuting witness to the effect that on January 19, she, the witness, came to the defendant's home at Trenton (Mercer County), where the defendant "opened up" the womb of the witness, who on that night gave birth to a child. The witness testified further that the defendant later came to the witness' home in Roebling (Burlington County), Jan. 22, 24 and 26, 1927; that while there, January 22, the defendant took a match and a bunch of gauze, put cotton on the match and gauze, and tied a string on it, and told the witness to put it into her private parts; and that on January 26 the defendant did the same thing. The testimony of the prosecuting witness as to what happened on January 22 and 24 at Roebling (Burlington County) was corroborated by one witness. Three physicians testified that the insertion into the private parts of a woman of such an object as that described by the prosecuting witness could have no purpose except to procure an abortion and that after a miscarriage had taken place there would be no occasion for inserting a match stick.

The supreme court held that on the testimony it was open to the jury to find that the prosecuting witness was pregnant on January 22, 24 and 26; that on each of these days and while she was pregnant the defendant performed an operation on her with instruments, with intent to produce a miscarriage; and that the prosecuting witness was mistaken when she testified that the fetus had been expelled on January 20. The court held that the fact that one operation may not have been successful did not affect the legal aspect of the case. The judgment of the court below was affirmed.

Roentgen-Ray Burn as Evidence of Neglect

(Ballance vs. Dunnington (Mich.), 217 N. W. 329)

In an action by Ballance against Dr. Dunnington for malpractice, judgment was given in the lower court for the plaintiff, and the defendant appealed. The plaintiff had stepped on a needle and it broke off in his foot. The defendant treated him and, the plaintiff claimed, so burned his foot by a negligent use of the x-ray as to cause him great pain and suffering and the ultimate loss of his right foot by necessary amputation. The x-ray was not used for treatment but to locate the needle in the plaintiff's foot and to assist the defendant in an operation for its removal. The plaintiff claimed that his foot was exposed to the x-ray for two hours and a half except for short intermissions. The defendant claimed that the foot was exposed to the x-ray for only a few seconds at a time and altogether about five minutes; also that while the plaintiff was in his operating room about two hours and a half, he was performing an operation on the foot to remove the needle, and did not require and did not use the x-ray except as stated. The supreme court held that "the evidence discloses that x-ray burns do occasionally occur in the ordinary course of exposure and in spite of the highest diligence and skill to prevent them. The reason is that persons of a certain type and temperament are susceptible to a burn while persons of a different type and temperament, under the same circumstances, will not suffer a burn. It also appears that this idiosyncrasy cannot be determined before or during the time of exposure, but is manifested only by subsequent developments. Plaintiff assumed the risk of a burn from a proper exposure to the x-ray and defendent incurred the liability to respond in damages if the burn was occassioned by his negligence." The plaintiff's case rested on the charge of negligence on the defendant's part in administering an excessive dosage and depended on his own testimony. He had the burden of showing that the burn was occasioned by the overdosage and that this happened because the defendant failed to exercise the reasonable and ordinary care, skill and diligence possessed by others in the same line of practice in similar localities. But the mere proof that the plaintiff was burned was not proof of negligence.

The defendant insisted that the plaintiff's testimony relative to the time his foot was exposed to the ray should not have carried that question to the jury because it was a physicial impossibility for the plaintiff to have had knowledge on the subject. But the court held that the credit to be given the plaintiff's testimony relative to the time his foot was exposed to the ray rested with the jury, and the court could not hold it of no probative value.

The defendant also objected to the trial court's admission of long hypothetical questions asked expert witnesses by the plaintiff's counsel; that the questions did not state scientific facts essential to be considered in giving an opinion. But the court held that the experts seemed able to answer without the particular factors asserted, and the assumed facts in the questions, which were established to be true by the evidence, justified the rulings of the lower court. Nor did the evidence of the experts as to their opinions of the standard of care, skill and diligence of a roentgenologist fix the standard; but the standard is that care, skill and diligence ordinarily possessed and exercised by others in the same line of practice and work in similar localities. The judgment was reversed.

Loss of Left Testis Held Permanent Partial Disability

(Coca-Cola Bottling Works v. Lilly (Md.), 140 Atl. 215)

While driving a truck, Sept. 19, 1925, Lilly collided with a wagon and was thrown against the steering wheel, causing contusion of the abdomen and left testis. He applied to the state industrial accident commission for compensation, which, after a hearing, November 3, held that he was temporarily totally disabled as the result of the injury. Dec. 29, 1926, the employer and insurer applied for another hearing before the commission to determine the nature and extent of the employee's disability at that time. At this hearing the commission found that the disability was a permanent partial one, in addition to his temporary total one, and an award was made accordingly. The employer and insurer appealed to the circuit court, which affirmed the award of the commission. They then appealed to the court of appeals of Maryland.

The appellants contend that the appellee was not entitled to recover for permanent partial disability because there was no legally sufficient evidence tending to show such disability as a result of the injury. The evidence before the commission showed that after the accident the appellee did not return to his work for seventeen days and then, finding that he was unable to do the work on account of his injury, he discontinued it. He was examined eight months later by Drs. Hopkins and Steiner, at the suggestion of the appellants. In describing his condition, Dr. Hopkins said that he had great pain because of atrophy of the testis and swelling of the cord, and that only the removal of the testis and part of the cord would give him relief, which was done in June, 1926. In October, 1926, he was again examined by Drs. Hopkins and Steiner, both of whom testified that he was able to return to his work. Dr. Steiner was then asked whether or not the loss of the testis would affect or impair his ability to perform physical or manual work, to which he replied that physically he would probably be able to do the same character of labor; but sometimes it affects the nervous system. The appellee, when placed on the stand, testified that he was not then and had not been able since the accident to return to the work he was doing, the reason being that he was in an extremely nervous condition when he drove a car.

The three witnesses, Drs. Hopkins and Steiner and the appellee, were the only witnesses before the commission, and from the evidence introduced the question before it was whether the appellee was incapacitated, and on the evidence it held that he

was so incapacitated. The statute provides that the decision of the commission is prima facie correct and the burden of proof in an appeal from it is on the party attacking it. Thus this case, not having been submitted to the court on any agreed statement of facts or on facts undisputed but on the conflicting evidence of the parties, the court could not hold as a matter of law that the appellee could not recover for the injury resulting, as the commission held, in permanent partial disability.

The appellants objected to the admission of evidence as to the effect of the removal of the testis on the physical condition and procreative powers of the appellee. But the court held that it did not feel warranted in holding that this evidence was inadmissible in the light of the evidence of the physicians as to the effect of the removal of a testis at times on the nervous system. This evidence showing the probable or actual effect of its removal on the appellee supported his statement that, because of the operation necessitated by the injury, he has suffered and is still suffering greatly with nervousness, which, it appears, prevents him from returning to his work. The judgment in favor of the injured workman was affirmed.

Special Nurse as Employee of Hospital

(Brown v. St. Vincent's Hospital (N. Y.), 226 N. Y. S. 317)

An employee was injured and sent by his employer to the defendant hospital for treatment. Following an operation, the patient's condition became so serious that the hospital authorities deemed it important that he have two special nurses. The patient's employer authorized the employment of these nurses, and the sister in charge secured them from a register. The patient died and the sister asked Brown, one of the special nurses and the plaintiff in this case, to sew up an incision in the patient's abdomen, which had been left open for drainage purposes. In doing so, Brown pricked his finger, infection followed, and he lost use of the finger. He instituted proceedings against the hospital under the workmen's compensation law, and the state industrial board made an award for 70 per cent loss of the use of his finger. The hospital appealed to the New York Supreme Court, Appellate Division. The only question raised was whether the hospital was Brown's employer. The court, at the outset, states that the relationship of master and servant, or of employer and employee, is created by contract, express or implied. In determining whether such a relationship exists, where the contract is obscure, the primary test is the right of the employer to control and direct the work of the employee. Other tests are the payment of wages and the right to hire and discharge. The business of a charitable hospital is to furnish to those who are ill facilities for skilful treatment and care. It does not contract to heal or attempt to heal patients through the agency of others. At most it undertakes to permit the use of its facilities and to supply others attempting to heal on their own responsibility. In conducting this business the hospital must have employees, who are charged with administrative functions. To such persons it is, of course, liable on its contract of employment, and it may incur liability for the acts of such employees under the doctrine of respondeat superior; or there may be liability for compensation to one admittedly employed and engaged at the time in duties which were part of the administrative routine. The court holds, however, that in this case the evidence shows that, in obtaining Brown through the registry office, the hospital was carrying out the instructions of the employer. The hospital authorities had no knowledge of what particular nurse would be sent. When the nurse arrived, nothing more was done than to inform him concerning the patient to whom he was assigned and of some general directions. It retained no right to control or direct his work. Nor did the fact that the hospital paid the nurse and served him meals make him a hospital employee, for that was only a matter of convenience to the employer, who reimbursed the hospital for the money so advanced. Finally, the point was raised that the sewing of incisions was the duty of the surgeon or undertaker, and that since the nurse's employment ended with the death of the patient, a new contract was made by the hospital. But the court held that if the nurse recognized that duty as one belonging to him in his capacity as a nurse, then it still would be the performance of services under his original contract; further, no authority was shown on the sister's part to make such a contract in behalf of the hospital, and it is not within the ordinary scope of the business of such an institution to prepare bodies for burial. The court decided, therefore, that Brown was not employed by the hospital and the award was reversed.

Mistake in Diagnosis—Improper Treatment

(Lewis v. McClellan (Mo.), 1 S. W. (2d) 247)

In an action for alleged malpractice, the jury returned a verdict for the plaintiff for $2,750, and the defendant appealed. The expert testimony introduced for the plaintiff disclosed her ailment as Pott's disease, with a destructive process present in the fifth lumbar vertebra and a similar involvement of the fourth, resulting in a permanent curvature of the spine in the lumbar region, with an accompanying rigidity and limitation of movement. The expert testimony further showed that pain in the back is one of the first symptoms; that infection might precede demonstrable destruction of bone by even two years; that a pus sac would form only at an advanced stage; that the usual and customary method of treatment was the immobilization of the back on the first appearance of pain and the use thereafter of hygienic measures to afford fresh air and proper diet; and that if such mode of treatment is followed on the first manifestation of the disease, the patient will probably recover within six or eight months, without the formation of any abscess, destruction of bone, or spine curvature.

Briefly, the defendant's evidence was to the effect that he was not called into the case until after the abscess had formed; that he operated in a skilful manner; that the progress made was as favorable as could be expected in such cases; that his employment ended before the more grave injury occurred; and that after the operation he immobilized the plaintiff's back by means of sandbags, although he advised the use of a plaster case, which the plaintiff's family refused to use.

In affirming the judgment of the lower court, the St. Louis Court of Appeals said: "It was unquestionably the defendant's duty to use reasonable knowledge and care in learning the condition of his patient, in making a diagnosis of the case, and in thereafter employing such remedial measures as were universally recognized by the medical profession as proper under the circumstances. There was evidence that, when defendant's services were first obtained, plaintiff was complaining of a severe pain in the region of her lower back; that the same was a symptom of tuberculosis of the spine; that the presence of the disease could have been detected immediately by removing the plaintiff's clothing, noting any bulging or curvature of the spine and manipulating with the hands so as to show pain and determine irregularity in the spinal column; and that the uniform treatment was the immobilization of the patient's back when rigidity of pain appears. But the plaintiff's evidence disclosed that the defendant made no manual examination until after the abscess had formed, and that he did not immobilize her back, or advise such procedure, when he learned of the presence of pain in the infected area. Consequently there was substantial evidence not only that plaintiff was not accorded such as ordinarily careful and thorough examination by defendant as the circumstances demanded, but also that the improper diagnosis thus made was followed by improper treatment, whereby serious and permanent injury result." The court held, also, that the exclusion of testimony as to the defendant's general reputation was not reversible error, since negligence rather than skill was the crux of the case.

After-Care Required of Surgeon

(McLendon v. Daniel (Ga.), 141 S. E. 77)

The plaintiff, McLendon, fractured his leg, April 16, 1924. He called in Dr. S., who, with the approval of the plaintiff, called in the defendant. The defendant set the leg, and bandaged it with a plaster cast, after wrapping it with a gauze bandage, but without putting cotton batting between the bandage and the cast. According to the testimony, the leg was properly set and bandaged according to the method approved by the medical profession, but Dr. S. testified that the better method would have been to use cotton batting as indicated. The patient

and Dr. S. testified that during the first five days after the fracture was set they repeatedly advised the defendant of the painful condition of the patient and asked that he give further attention to the case. The defendant disputed this testimony and testified that in passing the patient's house, April 21, he voluntarily called to see how he was getting on. During the five days that had then elapsed since the fracture, the leg swelled so much that certain of the tissues in the foot died, as the result of the constriction of the cast. The patient contended that the defendant was responsible for the lack of proper treatmen during this five day period. The defendant's contention was that he completed his connection with the case when he set the fracture and turned it over to the attending physician, Dr. S. The evidence showed that after Dr. S. removed the bandage at the direction of the defendant, April 21, the defendant treated the case and continued treatment until sometime in August, when he was discharged by the patient. The leg was amputated above the knee, August 29, by another surgeon. After the defendant's return to the case, April 21, he removed diseased portions of the foot but he refused to amputate because, in his opinion, the line of demarkation had not become established, to show where the diseased tissues extended. He testified that he believed that the removal of the diseased portions of the foot was the proper treatment at that time; that after such treatment granulation set in, and the condition of the patient showed improvement; that he believed the leg and the major portion of the foot could have been thus saved but for the unsafe and improper conduct on the part of the plaintiff and Dr. S. in removing the leg from the fracture box and allowing the patient to be raised up in order to wash the leg. He testified, also, to improper conduct of the patient in walking about on crutches prior to the amputation.

The jury, in the lower court, returned a verdict in favor of the defendant. The plaintiff appealed.

In affirming the decision of the lower court, the court of appeals of Georgia cited section 4427, Civil Code of Georgia (1910), as setting forth the standard of care to be exercised by a physician. That section reads: "A person professing to practice surgery or the administering of medicine for a compensation must bring to the exercise of his profession a reasonable degree of care and skill. Any injury resulting from the want of such care and skill will be a tort for which a recovery may be had." The court held that the evidence showed without dispute that all reasonable care and skill were used in setting the fracture and, further, so far as related to the treatment given subsequent to April 21, that the lower court without equivocation charged the jury that the defendant was required to exercise all reasonable care and skill. As to whether the defendant should have followed up his service in setting the fracture by thereafter attending the patient in order to render any needed treatment, or whether this duty developed upon Dr. S. who, the defendant contended, was the physician in charge, the court of appeals held that while the evidence was in conflict it was such as fully to warrant the jury finding in favor of the defendant.

Status of Physician Employed by Employees' Association

(Campbell v. Inland Empire R. Co. (Wash.), 262 P. 968)

The appellant, Campbell, an employee of the respondent railroad, fell from a train in August, 1925, and sustained injury. He was treated by a physician, Dr. Northrop, employed by a benefit association organized by the employees of the respondent and financed chiefly from the dues of such employees. In October the appellant, believing that he was able to work, applied to the respondent. He was told that it was necessary for him to get a discharge from the care of Dr. Northrop before beginning work. He went to the physician and the latter wrote to the respondent that Campbell would be sufficiently recovered to return to work by October 15. On October 13 the respondent paid to the appellant the sum of $470.92 and received from the appellant a signed release discharging the respondent from further liability. The appellant returned to work in November and worked until the following January, 1926. Some months thereafter he instituted action against the respondent for damages, claiming that the release given by him to the respondent was not binding because it was based on a false statement which the appellant claimed Dr. Northrop made when he approached him for the discharge from his care, that he was fully recovered from his injuries but that he had some muscular soreness or rheumatism. The physician categorically denied having made this statement.

The determining question before the court was the status of Dr. Northrop as to his employment. If he was an agent or employee of the respondent, it would be for the jury to determine whether the statements attributed to him by the appellant were actually made. If, on the other hand, Dr. Northrop was not the agent or employee of the respondent, the respondent would not be responsible for such statements, even if made. The Superior Court of Spokane County held that Dr. Northrop was the agent of the benefit association and dismissed action against the respondent. The appellant appealed to the Supreme Court of Washington, which, in affirming the decision of the lower court, stated that the affairs of the benefit association were administered by a board of managers composed of eleven persons. Four officers of the respondent company were ex officio members of the board and the remaining seven members were elected annually by the employees. This board of managers employed Dr. Northrop and paid him. The court held that it must follow that he was the agent and representative of the benefit association, and not that of the respondent, and that the latter was not liable for any representations that he had made.

It was claimed also that, since the respondent accepted and retained the benefits of the misrepresentation of the physician, for this reason the respondent became burdened therewith. The court held that the respondent did not request the physician to make any statement as to the appellant's condition and that it made no statement to the appellant as an inducement to him to sign the release that he had completely recovered. The court said that it could not see how it could be stated that the respondent, in requiring the release from liability at the time the money was paid, adopted or ratified any statement that Dr. Northrop may have made to the appellant as to his condition.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, St. Louis, Oct. 15-19. Dr. William P. Wherry, Medical Arts Bldg., Omaha, Sec.

American Association of Railway Surgeons, Chicago, October 31-November 2. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Sec'y.

American Child Health Association, Chicago, Oct. 15-19. Dr. Philip Van Ingen, 125 East 71st Street, New York, Secretary.

American College of Physical Therapy, Chicago, October 8-13. Dr. R. W. Fouts, Medical Arts Building, Omaha, Secretary.

American College of Surgeons, Boston, October 8-12. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Public Health Association, Chicago, Oct. 15-19. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

American Roentgen Ray Society, Kansas City, Mo., September 24-29. Dr. John T. Murphy, 421 Michigan Street, Toledo, Ohio, Secretary.

American Social Hygiene Association, Chicago, Oct. 15-19. Dr. W. F. Snow, 370 Seventh Avenue, New York, General Director.

Association of American Medical Colleges, Indianapolis, October 29-31. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Association of Military Surgeons of the United States, Baltimore, October 4-6. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Sec'y.

Central Tri-State Medical Society, Huntington, W. Va., Sept. 20. Dr. F. O. Marple, 418 Eleventh Street, Huntington, Secretary.

Indiana State Medical Association, Gary, September 26-28. Mr. T. A. Hendricks, Hume-Mansur Building, Indianapolis, Executive Secretary.

Interstate Postgraduate Medical Association of North America, Atlanta, Ga., Oct. 15-19. Dr. W. B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

Michigan State Medical Society, Detroit, September 26-28. Dr. F. C. Warnshuis, G. R. National Bank Building, Grand Rapids, Secretary.

Mississippi Valley Conference on Tuberculosis, Des Moines, Iowa, Sept. 17-19. Dr. A. W. Jones, 613 Locust Street, St. Louis, Secretary.

Nevada State Medical Association, Reno, September 21-22. Dr. H. J. Brown, Box 688, Reno, Secretary.

New York and New England Association of Railway Surgeons, New York, October 12-13. Dr. Brooks W. McCuen, 423 James Street, Syracuse, New York, Secretary.

Oregon State Medical Society, Portland, September 20-22. Dr. F. D. Stricker, 410 Taylor Street, Portland, Secretary.

Pennsylvania, Medical Society of the State of, Allentown, October 1-4. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Vermont State Medical Society, Burlington, October 11-12. Dr. William G. Ricker, 29 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Danville, Oct. 16-18. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J. Medical Sciences, Philadelphia

176: 153-308 (Aug.) 1928

*Drunkenness: Quantitative Study of Acute Alcoholic Intoxication. E. Bogen, Cincinnati.—p. 153.
*New Clinical Aspects of Alcoholism. J. L. Richardson and M. A. Blankenhorn, Cleveland.—p. 168.
*Undulant Fever (Brucella Melitensis) Due to Bovine and Goat Origin. R. H. Kampmeier, Ann Arbor, Mich.—p. 177.
Percussion of Heart Borders and Roentgen-Ray Shadow of Heart: One Hundred Cases. C. M. Kurtz and P. D. White, Boston.—p. 181.
*Aneurysm of Splenic Artery: With Rupture. E. L. Hunt, New York. —p. 195.
*Blood Changes in Malignant Disease D. Eisen, New York.—p. 200.
*Effect of External Temperature on Sedimentation Rate of Red Blood Corpuscles. M. B. Gordon and D. J. Cohn, Brooklyn.—p. 211.
*Significance of Arsenic in Excretions. K. Vogel, New York.—p. 215.
Parasitosis of Bile Passages and Gallbladder: Thirty-Seven Instances of Protozoiasis and One Instance of Infestation by Necator Americanus. F. Smithies, Chicago.—p. 225.
*Pulmonary Sequelae of Tonsillectomy in Children. A. E. Fischer, New York.—p. 253.

Drunkenness: Acute Alcoholic Intoxication.—A study of results obtained from an examination of 500 cases of acute alcohol intoxication leads Bogen to the conclusion that the alcoholic concentration of the urine, breath or body tissues constitutes the most reliable single factor in arriving at a correct diagnosis of the degree of acute alcoholic intoxication of a patient.

Study of Acute Alcoholism.—Richardson and Blankenhorn studied 198 cases of alcoholism. Fifty-one of these were acute cases; sixty-one were chronic. Neuritis was present in eighteen cases, hepatic cirrhosis in fourteen and delirium tremens in five cases. Acute alcoholism today is characterized, as a rule, by early loss of consciousness in a large percentage of cases, a slight febrile reaction and a transient albuminuria in addition to other signs of alcoholic intoxication. Bizarre pictures and unusual complications are not uncommon, and sudden death occasionally occurs. The very unusual clinical aspects of alcoholism as shown by six cases reported in detail are due probably to other poisons than alcohol. Alcoholism frequently causes traffic accidents. Chronic alcoholism has changed in the respect that the daily "tipster" has given away to an individual who indulges in frequent sprees but not daily drinking. Delirium tremens is relatively rare at present—probably because of the change in habits of the chronic alcoholic addict. Alcoholic neuritis at present is characterized by rapid onset usually less than four weeks before definite muscular weakness appears. Weakness is the outstanding complaint in 72 per cent of the cases. Alcoholic cirrhosis is essentially the same as before prohibition. Of 154 patients hospitalized for alcoholism, eight died: four from acute alcoholism with complications, namely, cerebral hemorrhage, lead encephalopathy, diabetes and colitis; three from cirrhosis, and one from wood alcohol poisoning.

Undulant Fever: Bovine and Goat Origin.—Three of the six cases reported by Kampmeier originated in Michigan. The patients were infected no doubt from a bovine source; the remaining three were in Utah, with goat milk as the presumable source of infection. It seems probable that the infection resulting from the goat strain of the organism is more likely to produce a more serious clinical course.

Aneurysm of Splenic Artery.—Hunt reports a case with autopsy in which the cause of death was arteriosclerosis, cardiac hypertrophy, and aneurysm of the splenic artery with rupture. Of forty-five cases on record in the literature, a clinical diagnosis was made in only one case.

Blood Changes in Malignant Disease.—An analysis is presented by Eisen of blood counts and the chemical condition of the blood in 353 cases of malignant disease. The average red cell count in the series was 3,569,000, with a hemoglobin of 62 per cent and a color index of 0.88. The average white cell count was 10,000 with 71 per cent polymorphonuclears and 23 per cent lymphocytes. The most severe anemia was found associated with cancer of the stomach. In this disease, the anemia was particularly marked in patients in whom hemorrhage and marked loss of weight were important clinical symptoms. Adenocarcinoma was found to be associated with a greater average anemia than scirrhous, colloid or "simple" carcinoma, presumably because of its greater tendency to be the cause of hemorrhage, ulceration and infection as well as a higher average of malignancy. No definite relationship was found between the extent of involvement or the degree of dissemination and the degree of the anemia. The patients in the older duration groups presented a less severe anemia than those in whom the disease was of less duration, presumably because the malignant tumor in such patients was less severe in all its properties. The average blood sugar was 113 mg. per hundred cubic centimeters. The average urea nitrogen and uric acid were within normal limits.

Effect of External Temperature on Sedimentation Rate.—Observations were made by Gordon and Cohn on the sedimentation rate of the red blood cells of adults in an attempt to determine the effect of external temperature on the sinking velocity. Higher temperatures accelerate the rate and lower temperatures diminish the velocity. Intermediate temperatures give intermediate results. The effect of external temperature is transitory and is not as lasting as that of internal temperature (prolonged heating).

Significance of Arsenic in Excretions.—Arsenic is found in the excretions of many individuals without discoverable cause and without giving rise to symptoms. In the series of 100 cases reported by Vogel it was found with especial frequency (85 per cent of forty cases) in patients suffering from jaundice. In nine out of thirty-four cases in which arsenic and jaundice occurred simultaneously, death resulted. In four of these cases death promptly followed an operation on the biliary tract. If arsenic is found in the urine of a patient with jaundice, eliminative treatment with thiosulphate should, if feasible, be carried out before any operation is undertaken. It is probable that in many of the cases reported as acute yellow atrophy of the liver arsenic was a contributing factor, with infection as another element in producing the lesions.

Pulmonary Sequelae of Tonsillectomy.—Post-tonsillectomy lung complications include pneumonia, abscess and foreign body. The infections caused by these give a varied symptomatology and prognosis. A series of fifteen post-tonsillectomy lung abscesses is described by Fischer. The prognosis for spontaneous recovery is fairly good. Death results in the majority of patients that do not recover within three months.

American J. Public Health, New York

18: 971-1087 (Aug.) 1928

Supervising Venereal Disease Carriers. R. S. Patterson, Trenton, N. J. —p. 971.
Study of Urban and Rural Tuberculosis Death Rates in New York State. J. S. Whitney, New York.—p. 978.
Montana's' Laboratory for Study of Insect-Borne Diseases. R. A. Cooley, Bozeman, Mont.—p. 993.
Pathology, Prophylaxis and Treatment of Subtertian Malaria. I. Mackenzie, Peru.—p. 997.
Carrying Health from Clinic to Community. E. Jacobs, Philadelphia. —p. 1003.
Incidence of Tuberculous Infection in Children from Rural Districts. R. E. Vories, Rochester, Minn.—p. 1006.
Importance of Proper Training for Sanitary Inspectors. E. W. J. Hague, Winnipeg, Man.—p. 1010.

American Review of Tuberculosis, Baltimore

18: 101-248 (Aug.) 1928

Carlo Forlanini; Contribution of Italian School to Pulmonary Collapse Therapy. G. Ronzoni, Milan, Italy.—p. 101.
Hypotensive Artificial Pneumothorax: Simultaneous Bilateral Pneumothorax. P. Serio, Sicily, Italy.—p. 109.
Explaining Artificial Pneumothorax to Patient. C. R. Howson, Los Angeles.—p. 114.
Critique on Artificial Pneumothorax in Pulmonary Tuberculosis: Mobility of Mediastinum. H. Sewall, Denver.—p. 117.

*Necropsy Findings Under Cracked-Pot Tympany. J. Walsh, Philadelphia.—p. 202.
Place of Origin of Normal Breath-Sounds. C. M. Montgomery, Asheville, N. C.—p. 205.
Factors in Pathogenesis of Tuberculosis: Activity. A. K. Krause, Baltimore.—p. 208.

Pathology of Cracked-Pot Tympany.—From necropsy study made by Walsh of eleven cases it would appear that, when cracked-pot tympany occurs in tuberculosis of the lungs apart from pleural effusion, the diagnosis of superimposed cavities is practically assured; the single exception found in these cases was associated with a rare condition in which a combination of cavity and central consolidation existed, so that a blending of superimposed tympanies was produced.

Annals of Surgery, Philadelphia

88: 161-320 (Aug.) 1928

*Massive (Atelectatic) Collapse of Lung. L. Sante, St. Louis.—p. 161.
*Surgical Lesions of Biliary Tract. W. A. Sherwood, Brooklyn.—p. 178.
*Closure of Abdomen Without Drainage After Operations on Bile Tracts. H. M. Richter and L. M. Zimmerman, Chicago.—p. 187.
Hidden Perforation of Gallbladder. E. D. Mitchell, Jr., Memphis, Tenn.—p. 200.
Late Intestinal Stenosis Following Strangulated Hernia: Four Cases. L. Ginzburg and E. Klein, New York.—p. 204.
Spontaneous Rupture of Spleen with Venous Thrombosis. J. S. Rhame, Charleston, S. C.—p. 212.
*Analysis of 176 Cases of Carcinoma of Stomach Submitted to Autopsy. M. Warwick, St. Paul.—p. 216.
*Experimental Study of Arterial Collateral Circulation. H. E. Pearse, Jr., Rochester, N. Y.—p. 227.
*Temperature Effect of Popliteal Vein Ligation in Thrombo-Angiitis Obliterans and Arteriosclerosis. J. J. Morton and H. E. Pearse, Jr., Rochester, N. Y.—p. 233.
*Primary Bilateral Tumors of Testicle. C. C. Higgins, Cleveland.—p. 242.
*Phagedenic Ulceration of Skin. M. G. Gillespie, Duluth, Minn.—p. 248.
Fracture and Dislocation of Sternum: Three Cases. H. H. Holderman, Shenandoah, Pa.—p. 252.
Treatment of Fractures Involving Ankle-Joint: Use of Pillow Splint and Early Weight-Bearing. F. B. Gurd, Montreal.—p. 260.
End-Results of Carpalectomy. B. F. Buzby, Camden, N. J.—p. 266.
*Acute Hematogenous Osteomyelitis. F. Beekman, New York.—p. 270.

Massive Collapse of Lung.—Rolling the patient back and forth on the uninvolved side has, in the five cases in which Sante instituted it, proved successful in promptly reestablishing aeration of the lung.

Surgical Lesions of Biliary Tract.—Sherwood reports that at operation stone formation was present in 120, or about 65 per cent, of the total number of patients operated on. In 108 roentgen-ray studies, the presence of stone was demonstrable in only twenty-four patients, or about 22 per cent of those in whom such examinations were made. Malignant disease was found in eight patients and constituted 4 per cent of the total. Obstruction of the common bile duct with jaundice was observed in ten cases, or 5 per cent of the entire series. There was no instance of accidental injury to the duct system. While in this series cholecystectomy was the operation of election for gallbladder disease, cholecystostomy or simple drainage operations were done in eleven of the acute cases as an emergency measure. Sherwood feels that this simpler procedure should be more frequently utilized in the acute, bad risk patient, reserving the radical and complete operation for a subsequent time. In the analysis of the end-results it may be seen that the patients who obtained the most permanent and complete relief from symptoms were those with cholelithiasis; that they sought relief because of repeated attacks of biliary colic or because of an acute episode characterized chiefly by severe right upper quadrant pain, not relieved by ordinary measures. At operation, in these cases, it was found that they were almost invariably associated with impaction of stone in the cystic or more rarely the common duct and that the underlying pathologic condition was not primarily infectious in origin but due chiefly to mechanical and circulatory disturbances with resultant edema, hemorrhage, hydrops or infarction. When actual infection was shown to be present, it seemed to be a complication or late result rather than the primary lesion. The cases, on the other hand, which were least satisfactory in permanent relief of symptoms were those not associated with cholelithiasis: cases in which relief was sought, not because of severe pain or colic, but which presented that vague train of digestive disturbances that have been so often ascribed to chronic infection of the gallbladder. In cases not exhibiting more definite pathologic changes than slight fibrosis or involution atrophy and presenting this well known vague group of symptoms, Sherwood has come to believe that such gallbladders should be less frequently sacrificed than has been the recent practice of many surgical clinics, and that the causes for such symptoms should be sought for elsewhere and corrected by means less hazardous and with better end-results than have followed the too frequent removal of this organ.

Closure of Abdomen Without Drainage After Operations on Bile Tracts.—Of the 400 cases reported on by Richter and Zimmerman, in 262 the abdomen was closed without drainage, including twenty-nine cases in which the common duct was opened and sutured, and twenty-two cases requiring other major surgical work in adition to that on the bile tracts. Of the seven deaths occurring in these 262 cases, only one could definitely be ascribed to peritonitis. There have been no gross accidents resulting from the primary closure, and with the one possible exception the authors have yet to regret having closed an abdomen without drainage. There were two fatalities in 204 simple cholecystectomies closed without drainage, only one of which was of abdominal origin. Death in this case was due to pancreatitis and was unassociated with the question of wound drainage. The frequent bile drainage occurring after operations in which the incision is drained is not seen if the drain is omitted. Omitting the drain minimizes the postoperative discomforts, reduces the incidence of infection-hernia, and shortens the postoperative stay in bed, stay in hospital, and period of convalescence. On the basis of their material, the authors are convinced of the safety and desirability of closing the abdomen without drainage after operations on the biliary tracts, and urge its wider application.

Analysis of Carcinoma of Stomach.—Warwick reports on 176 cases of carcinoma of the stomach submitted to autopsy. Carcinoma of the stomach occurred more frequently in males than in females. The age incidence varied from 32 to 82, with an average of 59 years. The largest number (35 per cent) occurred in the sixth decade, with 29 per cent in the fifth decade. The most frequent location was in the pylorus (42 per cent); then the wall (37 per cent), the cardia (11 per cent) and diffuse throughout the wall (10 per cent). Ulceration was present in 43 per cent, and of these 51 per cent showed perforation which was plugged in 16 per cent and open, causing a fatal peritonitis, in 35 per cent. Obstruction was definite in 34 per cent, of which 72 per cent were at the pylorus and 28 per cent at the cardia. Metastases occurred in 77 per cent and were absent in 23 per cent. The most frequent site was the liver, then regional lymph nodes, peritoneum, omentum, lungs, mesentery, and bronchial lymph nodes. The most frequent fatal complication was peritonitis, the etiology of which was evenly divided between perforation and operation. In 11 per cent there was nothing but the presence of the tumor to account for death. Emaciation was entirely absent in 18 per cent, moderate in 20 per cent and prominent in 62 per cent.

Experimental Study of Arterial Collateral Circulation.—Pearse asserts that the main artery of an extremity may be completely excised without subsequent gangrene or functional disability. The removal of the principal artery is compensated for by the dilatation of the smaller vessels, which results in a rich vascular plexus. One or two lateral branches seem to prevent total atrophy of a segment of artery isolated between ligatures. Three or more branches preserve unchanged an isolated portion of the parent artery. The vasa vasorum pass around a ligature obstructing their parent artery and so act as collateral channels.

Effect on Temperature of Ligation of Popliteal Vein.—The results obtained in the six cases reported by Morton and Pearse show that ligation of the popliteal vein in cases of thrombo-angiitis obiterans and arteriosclerotic gangrene results in an elevation of temperature of the extremity.

Primary Bilateral Tumors of Testes.—In reviewing the cases of malignant tumor of the testes reported in the literature, Higgins found that a primarily bilateral involvement has been reported in only a few cases. A case of primary bilateral embryoma is reported in order that the incidence of these bilateral tumors may be known and emphasis laid on the importance of a careful examination of the opposite testis in all cases of unilateral tumor.

Phagedenic Ulceration of Skin.—The majority of the cases already on record as well as the case reported by Gillespie followed operation for acute perforative appendicitis. The condition is characterized by its chronicity; its insidious progressiveness, being particularly rebellious to all treatment except wide excision; and its extreme sensitiveness. The constitutional symptoms are those of a chronic infection—loss of weight, haggardness, slight secondary anemia, low grade irregular fever, and leukocytosis. The streptococcus and the staphylococcus seem to be the inciting organisms.

Acute Hematogenous Osteomyelitis.—Beekman made a study of 138 cases of hematogenous osteomyelitis. All of these patients were under 13 years of age. The disease was in an acute stage on admission of the patient to the hospital in ninety-eight, and had become chronic in forty. There were eighteen deaths, all in acute cases, a mortality for this type of case of 18 per cent. Of the eighty patients who recovered from the acute stage of their osteomyelitis, seventy-two were followed for periods of a year or longer after their discharge from the hospital. Of the forty chronic cases, twenty-six were followed. There were three cases in which the epiphysis was primarily involved; two of the lower femur and one of the lower tibia. There were two cases of Brodie's abscess. Septicemia was the cause of death in fourteen cases, pneumonia in three. In one case the cause of death was not known.

Archives of Surgery, Chicago

17: 179-354 (Aug.) 1928

*Fat Embolism: II. Incidence at Postmortem. E. P. Lehman, University, Va., and R. F. McNattin, St. Louis.—p. 179.
*Arteriovenous Aneurysm of Brain. W. E. Dandy, Baltimore.—p. 190.
*Ligation of Artery and Concomitant Vein in Operations on Large Blood Vessels. F. V. Theis, Chicago.—p. 244.
Multiple Renal Stones: Treatment. W. F. Braasch and J. L. Culligan, Rochester, Minn.—p. 259.
*Effects of Injections of Acid and Trauma on Jejunal Transplants to Stomach. W. J. Gallagher, Chicago.—p. 279.
Physiology of Liver and Intestine. C. F. Horine, Baltimore.—p. 289.
*Toxic Goiter and Mental Disease: Relief of Psychoses in Thyrotoxic Patients by Thyroidectomy. J. L. DeCourcy, Cincinnati.—p. 296.
Vital Capacity: Its Significance in Relation to Postoperative Pulmonary Complications. J. H. Powers, Boston.—p. 304.
Ascariasis of Gallbladder: Literature and Case Report. C. B. Morton, University, Va.—p. 324.
Review of Urologic Surgery. A. J. Scholl, Los Angeles, and others.—p. 331.

Casuistics of Fat Embolism at Postmortem.—Lehman and McNattin examined the available lung tissue in fifty unselected cases that were subjected to autopsy. They found that definite fat embolism occurs in more than half of all lungs examined at autopsy. About one half of the lungs in which fat embolism occurs are from patients in whom there has been no history of trauma. In a small proportion of cases in which definite trauma is recorded, no emboli could be found in a single examination of one lung. Fat embolism is found in an overwhelming proportion of lungs from patients subjected to injury or operation. Fat embolism occurs in more than half of the miscellaneous fatal diseases without history of trauma. The results of this study confirm earlier conclusions that fat embolism is an extremely common postmortem observation in all kinds of conditions, traumatic and nontraumatic.

Arteriovenous Aneurysm of Brain.—Eight arteriovenous aneurysms of the brain are presented by Dandy from a series of tumors of the brain. Twenty-two additional cases have been assembled from the literature. Arteriovenous aneurysms of the brain are similar to those of the vascular system elsewhere in the body, except that traumatic arteriovenous aneurysms probably do not occur in the brain, because large arterial and venous trunks are not in apposition. There are two other types of arteriovenous aneurysms, one in which an anomalous vessel of congenital origin establishes a direct end to end communication between an artery and a vein; the other in which a network of vessels—a so-called angioma—is interposed between an artery and one or several veins. A capillary bed between the artery and the vein is lacking in both types; the arterial blood, therefore, passes directly into the veins. Both types are evident by the large, full and tortuous veins on the surface of the brain. A thrill can usually be felt, and red arterial blood can be seen pumping into the dark venous blood. The observations make the diagnosis absolute. There are usually congenital abnormalities of the surface veins of the brain. Arteriovenous aneurysms of the brain are not uncommon, occurring in about 1 per cent of a series of tumors of the brain. They are located in almost every part of the brain. The symptoms are fairly uniform and characteristic. Jacksonian convulsions, followed by transient loss of sensation or motor power in the part affected by the convulsion, and a gradually progressive sensory or motor hemiplegia on the affected side, are the symptoms common to most of the aneurysms affecting the cerebral hemispheres. The symptoms are usually of many years' duration, often beginning in childhood and continuing into adult life; again, they frequently do not begin until after the thirtieth or fortieth year. General pressure symptoms, like those of a tumor of the brain, do occur, but in a minority of cases. Cerebral hemorrhages occurred in about 40 per cent of the cases. It is the principal cause of death. Changes shown by the roentgen ray are at times helpful in making a diagnosis and occasionally are pathognomonic. Ventriculography helps to determine the existence of a space-occupying lesion. The treatment is of two types: (1) ligation of the entering arteries, with or without extirpation of the mass of vessels—so-called angioma; (2) ligation of the internal carotid artery (for cerebral aneurysm) or of the vertebral artery (for cerebellar aneurysm). Occasionally, a subtemporal or cerebellar decompression (depending on the location of the aneurysm) may be indicated. Radical ligations or extirpations alone are curative but are exceedingly dangerous to life and function and are indicated in the minority of cases, when the aneurysm is posterior to the motor tracts.

Results of Ligation of Artery and Concomitant Vein.—Theis says that the results of the determinations of the volume of flow and the study of the injected collateral vascular bed in experimental animals show that the final increase in collateral vessels is far better when the vein is patent. With sudden occlusion of a large artery, as in embolism or injury to the vessel, the immediate improvement in the collateral bed due to ligation of the concomitant vein is needed to maintain the vitality of the limb. When a certain amount of collateral vessels have had an opportunity to develop, as in threatened spontaneous gangrene, surgical procedures on the main vessels of the extremities should be limited to the artery alone.

Association of Hyperacidity and Chronic Gastric Ulcer.—In experiments made by Gallagher the attempt at artificial hyperacidity failed to increase the occurrence of chronic ulcer in the stomach itself, in the scar tissue of the transplant or in the transplant mucosa.

Toxic Goiter and Mental Disease.—DeCourcy has operated on fourteen mentally unbalanced patients with toxic goiter. The mental symptoms were extremely pronounced in the majority of cases, yet all but two patients recovered completely and were able to resume their former occupations. They have remained clear mentally to date. In two instances, both in young persons, a diagnosis of dementia praecox was made and a poor prognosis given; yet both patients recovered. In all but one case, the derangement occurred in persons suffering from the exophthalmic type of goiter. The exception was a case of the toxic adenomatous type, also with evidence of hyperplasia. The period during which mental recovery took place varied from several months to a year. Two patients with dementia were not improved by operation; one died in an asylum, the other is still an inmate. In one case, a psychosis developed on the eighth day following removal of an extremely toxic goiter, and this patient is still in a sanatorium.

Atlantic Medical Journal, Harrisburg, Pa.

31: 791-890 (Aug.) 1928

Treatment of Gonorrhea. G. A. Holliday, Pittsburgh.—p. 791.
Gonorrheal Arthritis in Adult Male: Treatment by Injection of Seminal Vesicles. T. C. Stellwagen and J. F. McCahey, Philadelphia.—p. 793.
Treatment of Urethral Stricture, Prostatitis and Seminal Vesiculitis. P. P. Mayock, Wilkes-Barre, Pa.—p. 794.
Male Sterility. W. H. Mackinney, Philadelphia.—p. 796.
Treatment of Gastrojejunal or Marginal Ulcer. J. B. Deaver, Philadelphia.—p. 798.
Etiology and Specific Treatment of Rheumatic Fever. J. C. Small, Philadelphia.—p. 802.
Importance of Prolonged Convalescent Care in Rheumatic Heart Disease. F. D. W. Lukens and W. D. Stroud, Philadelphia.—p. 805.
*Electrocardiographic Changes Occurring During Rheumatic Fever. T. M. McMillan and A. Cook, Philadelphia.—p. 806.

Pulsating Exophthalmos: Five Cases. J. M. Wheeler, New York.—p. 812.
Senile Macular Disease. G. E. de Schweinitz, Philadelphia.—p. 818.
Intestinal Obstruction by Invaginated Meckel's Diverticulum. H. R. Decker, Pittsburgh.—p. 824.
Postural Deformities of Knees and Feet. J. M. King, Jr., Pittsburgh.—p. 830.
Muscle Training in Postural Deformities. J. Wright, Pittsburgh.—p. 832.

Electrocardiographic Changes in Rheumatic Fever.—The high percentage of patients who show electrocardiographic changes during rheumatic fever that has been reported by other workers was confirmed by McMillan and Cook in their study on forty-three patients. Some disturbance was found in thirty-six of these patients. Extrasystoles, auriculoventricular rhythm, auriculoventricular dissociation, auricular paroxysmal tachycardia, various grades of auriculoventricular heart block, and changes in the shape of the Q, R, S and T waves and in the R-T and S-T intervals were all encountered. In addition to these previously reported changes, notching of the P waves was found present in slightly more than 50 per cent of their series. The transient nature of these disturbances was confirmed.

California and Western Medicine, San Francisco

29: 73-144 (Aug.) 1928

Relation of Certain Inorganic Elements to Life Processes. C. L. A. Schmidt, Berkeley.—p. 73.
Treatment of Obstructive Jaundice and Its Complications. W. Walters, Rochester, Minn.—p. 77.
Electric Shock: Case. M. L. Neff, Los Angeles.—p. 80.
Management of Heart Conditions in Children. A. J. Scott, Los Angeles.—p. 81.
Protein Test for Urea-Formation Function of Liver: Comparative Value in Health and Disease. E. H. Theis, San Francisco.—p. 83.
Jaundice Due to Movable Kidney. A. J. Scholl, Los Angeles.—p. 87.
Asthma and Hay-Fever: II. S. H. Hurwitz, San Francisco.—p. 91.
Lure of Medical History: Imhotep—Patron of Physicians and Deity of Medicine in Ancient Egypt. L. H. Garland, San Francisco.—p. 96.
*Phenobarbital Sodium: Use in Tabetic Crises, Herpes Zoster and Morphinism. L. Gunther and H. M. F. Behneman, San Francisco.—p. 100.
Milroy's Disease: Two Cases. C. W. Page, Berkeley.—p. 101.

Use of Phenobarbital Sodium to Control Pain.—Gunther and Behneman have used phenobarbital sodium for the control of severe pain, including such diseases as tabetic crises and herpes zoster, and in the treatment of the withdrawal symptoms of morphine addiction. One-tenth gram (1½ grains) of the powder was dissolved in sterile distilled water in the manner of preparation of morphine for hypodermic use, except that further boiling of the solution was avoided. The drug was given subcutaneously immediately after preparation. Its action became apparent in from ten to twenty minutes, and relief of pain occurred in from twenty to thirty minutes. It was equally effective as an anodyne in herpes zoster and in the gastric crises of tabes. It appears to be more helpful for the latter than any other drug, proving more effective than morphine.

Colorado Medicine, Denver

25: 255-290 (Aug.) 1928

Secondary Pathologic Changes in Tuberculosis of Spinal Column and Their Management. A. Steindler, Iowa City.—p. 260.
Tuberculous Pleurisy. G. B. Webb, Colorado Springs.—p. 263.
Hay-Fever. L. A. Conway, Colorado Springs.—p. 266.
Diagnosis of Brain Tumor: Five Cases. F. T. Stevens, Colorado Springs.—p. 271.

Illinois Medical Journal, Oak Park

54: 85-168 (Aug.) 1928

Goiter from Standpoint of Surgeon. D. C. Straus, Chicago.—p. 101.
Clinical Manifestations of Endurance (Marathon) Dancing. M. Thorek, Chicago.—p. 114.
Chorea. J. R. Gerstley, Chicago.—p. 117.
Some Problems of Roentgenologist in Small Community. H. A. Elkins, Mt. Carmel.—p. 122.
Facts and Fancies Regarding Use of Roentgen Rays in Progressive Medicine. E. S. Blaine, Chicago.—p. 123.
Earliest Syndromes of Pulmonary Tuberculosis. J. Ritter, Chicago.—p. 126.
*Epilepsy. R. A. Ashbaugh, Kankakee.—p. 129.
Surgical Treatment of Pulmonary Tuberculosis. C. A. Hedblom, Chicago.—p. 134.
Trachoma. J. S. Waldman, Herrin.—p. 139.
Traumatic Injuries to Mesentery. C. E. Black, Jacksonville.—p. 146.
Bronchial Asthma, Pernicious Anemia, Unknown Fever. K. Koessler, Chicago.—p. 147.
Private Practice Is at Stake. P. R. Blodgett, Chicago Heights.—p. 151.
Complications of Thyroidectomy. H. H. Cox, Chicago.—p. 157.
Importance in Recognition of Early Peptic Ulcer. L. D. Snorf, Chicago.—p. 161.

Intestinal Parasites in Epileptic Patients.—Twenty-five cases of epilepsy examined by Ashbaugh for intestinal parasites all showed *Endameba histolytica*. About one half of the cases examined showed a combination of parasites. In one case alone, six varieties of intestinal parasites were found. Only one case of active lamblia was found in the twenty-five cases examined. Most of the cases showed a hyperacidity. Two cases did not show hydrochloric acid. A few amebas were found in the alkaline stomach contents, but none were found when hydrochloric acid was present. In the duodenal contents and in the gallbladder and liver bile, numerous amebas were found and they were especially numerous in the abundant mucus that was found in all these cases. Working on the theory that the epileptic seizures were probably caused by autointoxication from a poison or poisons originating in the intestinal tract, Ashbaugh begins a treatment by trying to rid the intestinal tract of the parasite. The drugs used were neoarsphenamine, mercury and mercurochrome-220 soluble. The patients from the beginning of this treatment showed improvement in general appearance, were more mentally alert, and said that they felt better. The epileptic seizures were of shorter duration and the length of time between seizures had increased. Blood cultures of these patients were positive to a large gram-positive organism, *Micrococcus tetragenous*, in 100 per cent of the cases examined. Injections of autogenous vaccine, made from this organism, relieved the patient of epileptic seizures for a certain length of time. A stock vaccine made from this organism relieved the convulsions of status epilepticus in three cases, which was 100 per cent of the cases treated. All of the patients who were treated improved.

Iowa State M. Society Journal, Des Moines

18: 311-346 (Aug.) 1928

Bronchiectasis. J. H. Peck, Des Moines.—p. 311.
Embolism. W. A. Rohlf, Waverly.—p. 315.
Therapeutics—Past and Present. H. D. Holman, Mason City.—p. 317.
Review of Fifty Cases of Cesarean Operation Without Mortality. J. Niemack, Charles City.—p. 319.
Tribute to Profession of Fayette County. C. D. Mercer, West Union.—p. 321.
Clinical Aspects of Poliomyelitis (Infantile Paralysis). W. L. Bierring, Des Moines.—p. 324.
Iowa Health Notes. H. Albert, Des Moines.—p. 326.
Electrocardiograms: Their Value in Diagnosis and Prognosis. M. M. Myers, Des Moines.—p. 327.

Military Surgeon, Washington, D. C.

63: 153-308 (Aug.) 1928

Medical Corps in Peace and in War. H. Zinsser.—p. 153.
Study of Wassermann Negative Syphilis. A. G. Hulett.—p. 167.
Plan for Reduction of Defects in Men of Military Age. R. A. Milliken.—p. 182.
Incidence of Acute Respiratory Diseases in Military Population of Hawaii During Decade 1917-1926. L. B. Bibb.—p. 204.
Making of Flight Surgeon. J. D. Taylor.—p. 210.
Cyst of Pancreas: Case. T. Van Urk.—p. 215.
Jean-Francois Coste: Chief Physician of French Expeditionary Forces in American Revolution. J. E. Lane, New Haven, Conn.—p. 219.
Comminuted Fracture of Femur. E. H. Carnes.—p. 239.
Recollections of Old Medical Officers: Colonel Henry Lippincott. F. R. Keefer.—p. 243.

Minnesota Medicine, St. Paul

11: 509-572 (Aug.) 1928

Dislocations and Simple Fractures of Elbow. E. S. Geist and M. O. Henry, Minneapolis.—p. 509.
*Status of Quinidine Therapy. E. T. Herrmann, St. Paul.—p. 514.
Occupational Eye Surgery. A. C. Dean, Crookston.—p. 525.
Thyroid Disease Requiring Surgery. A. E. Benjamin, Minneapolis.—p. 528.
*Diet in Treatment of Dyspepsia. C. S. McVicar, Rochester.—p. 535.
Condition of Lowered Metabolism. J. B. Carey, Minneapolis.—p. 538.
Giant Cell Tumor of Upper End of Femur: Three Cases. M. S. Henderson, Rochester.—p. 542.
Of What Diagnostic Value is Single Gastric Analysis? E. L. Schield, Mankato.—p. 548.

Status of Quinidine Therapy.—Herrmann asserts that quinidine is an effective agent in converting auricular fibrillation into a normal rhythm. Sixty-six per cent of the eighteen cases reported on were so converted over a period of five months or more. Etiology and duration of fibrillation play a very small part in predetermining the value of the drug. The author feels that the danger of quinidine, especially with reference to embolic death, has probably been overrated. Patients with heart block,

severe myocardial degeneration or marked decompensation, however, should not receive quinidine because of its toxic effect on the myocardium. The dose of the drug should be great enough to procure a physiologic result in any given case. Its comparatively rapid excretion should be borne in mind, as also the fact that moderately large doses are often successful when small ones are of no avail. Minor unpleasant effects of the drug are not neecssarily indications for stopping its use. Tachycardia is a rather frequent objective sign noted during the administration of the drug but does not persist after its removal. In cases of circulatory embarrassment or fibrillation with marked high rate and pulse deficit a thorough course of digitalis should precede the use of quinidine.

Diet in Treatment of Dyspepsia.—Diet in the treatment of functional dyspepsia is not regarded highly by McVicar. He says: The predominant feature in all such patients is fear, and it is necessary to overcome this fear and to restore confidence. To do this it is necessary to supplement a painstaking history by a thorough general and roentgenologic examination. Organic disease of the digestive tract must be ruled out with reasonable certainty, and, if possible, any complex which may have played havoc with the mental hygiene must be disclosed. Many patients are promptly relieved when an adequate cause for their anxiety is revealed. Another factor in treatment is to restore the patient's confidence in his ability to eat the same food that others eat. He is accordingly placed on a diet which makes no claim to eccentricity. It need not be smooth or rough, or contain an excess of vegetables, bulk, fat, buttermilk or bran. The diet must be one which is easily available in his home, which will not impose an economic burden, and which will contain the elements of a balanced diet. Often these patients have been submitted to the most amazing restrictions. This is largely because each succeding physician consulted has deleted a few foods. While dietary restrictions may result in relative vitamin or other deficiency, the deleterious effect of restriction on the patient's morale is of equal or greater consequence. It is quite impossible to place any patient on qualitative restrictions without inducing disability, at first mental, although it will promptly reveal itself in physical retardation and impaired initiative. Suggestion may be used or it may be necessary to use blunting drugs temporarily to control sleeplessness and to treat the habit of anxiety, but the essence of management is the restoration of confidence. A diet should never be used as a narcotic. Diet has a limited application in treatment, and unwarranted restrictions in diet or the use of eccentric diets may be harmful.

Missouri State M. Association Journal, St. Louis

25: 359-408 (Aug.) 1928

Dangers of Diabetic. E. P. Joslin, Boston.—p. 359.
Diagnosis of Early Clinical Tuberculosis by General Practitioner. F. M. Pottenger, Monrovia, Calif.—p. 362.
*Surgical Problems in Aged. W. P. Glennon, St. Louis.—p. 369.
*Irrigate Lung Lesions. C. L. Wayman, St. Louis.—p. 372.
*Perinephritic Abscess: Spontaneous Rupture into Lung. J. H. Sanford and H. A. Rusk, St. Louis.—p. 374.
Rest: Its Place in Health and Disease. S. P. Child, Richards, Mo. —p. 375.
Gastric Hyperacidity: Importance of Treating After Removal of Focal Infection. J. I. Tyree, Joplin.—p. 380.
Service of Laboratories of State Board of Health of Missouri: H. R. L. Laybourn, Jefferson City.—p. 389.

Surgical Problems in Aged.—Glennon is of the opinion that many elderly patients are doomed to semi-invalidism, even to an untimely death, by some curable disease or deformity because they believed they were too old to stand operation. While not minimizing the many dangers and pitfalls associated with surgical intervention in old people, Glennon feels that many of these elderly individuals suffering from hernias, gallbladder disease, hemorrhoids, procidentia, varicose veins with ulcer, even infections and gangrene of the extremities, may be saved or at least made comfortable by conservative operative procedures with comparative safety, if only judgment is used in the selection of patients, the anesthetic best suited for the individual and appropriate preoperative and postoperative care.

Irrigating Lung Lesions.—Wayman describes his method of irrigating the lung with a 2 per cent solution of butyn. He anesthetizes the throat, larynx and upper trachea. Then he passes a tracheal catheter covered with one of soft rubber, attached to a soft rubber bulb of 3 ounces capacity which contains the irrigating solution. The patient should be recumbent on the side to be treated, with the shoulders higher than the pelvis, so the fluid will find its way downward into the lung. By lowering the shoulders after depositing the solution, one can flood the apex quite nicely. The solution is used 2 degrees warmer than the body temperature to avoid chilling the lung tissues, thus eliminating the danger of pneumonia, atelectasis, edema of the lung and such other complications as might arise if the solution were used cold. In a case of tuberculosis, Wayman uses a 5 per cent solution of calcium chloride in distilled water. This solution is filtered and refiltered, then boiled before using. In bronchiectasis he uses the same solution. In chronic bronchitis he has found a 10 per cent solution of alkaline antiseptic very satisfactory. The operation does not cause distress or discomfort other than the thick heavy feeling in the throat resulting from the anesthetic. No unpleasant symptoms have been seen and no failure of happy results.

Rupture of Perinephritic Abscess into Lung.—Sanford and Rusk report a case of rupture of a perinephritic abscess directly into the lung without an empyema. Under local anesthesia, immediate and extensive drainage of the perinephritic abscess was done. A large quantity of pus was evacuated; the kidney was palpated and found to have a rent in the lower pole which was quite significant of a recent rupture of the cortical abscess. Five hundred cubic centimeters of citrated blood was given the patient and he left the operating room in good condition. Three months after the operation the patient had gained 40 pounds (18 Kg.) and was apparently in perfect health.

Nebraska State Medical Journal, Norfolk

13: 281-320 (Aug.) 1928

Symptoms of Anterior Poliomyelitis. F. Clarke, Omaha.—p. 281.
Serum Treatment of Poliomyelitis. E. C. Rosenow, Rochester, Minn. —p. 283.
Epidemiology of Poliomyelitis. W. H. Frost, Baltimore.—p. 286.
Rehabilitation of Function After Poliomyelitis. H. R. Miner, Falls City. —p. 289.
Progress of Surgery. H. H. Davis, Omaha.—p. 293.
Management of Gastric and Duodenal Ulcers. C. Andrews, Lincoln. —p. 297.
Veins of Lower Extremity and Their Clinical Significance (Applied Anatomy). R. R. Best, Omaha.—p. 301.
Care of Aged in General Practice. J. H. Downing, Rising City.—p. 303.

New Orleans Medical and Surgical Journal

81: 89-158 (Aug.) 1928

Yesterday and Today in Medicine. J. A. Crisler, Memphis, Tenn.—p. 89.
Young Physician. C. J. Miller, New Orleans.—p. 93.
Control of Tuberculosis in Infants and Children. H. F. Garrison, Jackson, Miss.—p. 96.
Subphrenic Abscess. A. Ochsner, New Orleans.—p. 102.
Treatment of Burns. R. A. Cutting, New Orleans.—p. 112.
Interstitial Pregnancy Unruptured: Case. H. B. Alsobrook, New Orleans.—p. 120.
Treatment of Acne. T. A. Maxwell, New Orleans.—p. 126.
Surgery of Reticulo-Endothelial System. I. Cohn, New Orleans.—p. 128.
Gangrenous Appendicitis Occurring Simultaneously with Scarlet Fever. J. M. Bodenheimer and T. J. Fleming, Shreveport, La.—p. 136.
Advanced Banti's Disease Followed by Splenectomy: Case. H. E. Guerriero, Monroe, La.—p. 137.

Occupational Therapy and Rehabilitation, Baltimore

7: 229-304 (Aug.) 1928

Occupational Therapy at Glen Lake Sanatorium. M. L. Rowe and E. S. Mariette, Oak Terrace, Minn.—p. 229.
Occupational Therapy with Children. L. H. Graham, Los Angeles.—p. 245.
Rags. E. L. Zoller, Boise, Idaho.—p. 249.
Occupational Therapy with Tuberculous Patients. E. L. Baker, Minneapolis.—p. 257.
Junior League's Occupational Therapy Work for Children. R. F. Phillips, Milwaukee.—p. 261.
Work on Wards. F. M. Northrup.—p. 267.
Massachusetts Rehabilitation Conference. M. E. P. Lowney, Boston. —p. 275.
What Should Training School Expect from Hospital for Its Pupils Who Are Taking Period of Practice Training? G. R. Lermit, St. Louis. —p. 281.

Surgery, Gynecology and Obstetrics, Chicago

47: 145-172 (Aug.) 1928

*Leukoplakia of Urinary Organs: Thirteen Cases. H. L. Kretschmer, Chicago.—p. 145.
*Derangements of Knee Joint. M. Harbin, Cleveland.—p. 155.
*Effect of Iodine and Thyroid Feeding on Thyroid Gland. W. B. Mosser, Philadelphia.—p. 168.

*Morphologic Changes in Exophthalmic Goiter Following Use of Lugol's Solution. C. A. Hellwig, Wichita, Kan.—p. 173.
*Newer Aspects of Liver Disease. E. Andrews, W. A. Thomas and K. Schlegel, Chicago.—p. 179.
Cancer of Cervix Uteri: Surgical Treatment and Criteria Essential to Establishment of Prognosis Following Operation. K. H. Martzloff, Portland, Ore.—p. 183.
*Ovarian Irradiation: Effect on Health of Subsequent Children. D. P. Murphy, Philadelphia.—p. 201.
What Every Doctor Should Know About Cancer of Stomach and What a Gastro-Intestinal Study Means. J. C. Bloodgood, Baltimore.—p. 216.
Technic for Thyroidectomy. A. E. Hertzler, Halstead, Kan.—p. 225.
Special Methods for Treatment of Fracture Deformities of Femur. H. W. Orr, Lincoln, Neb.—p. 235.
*Gastric Exclusion. H. B. Devine, Melbourne, Australia.—p. 239.
Surgical Results in Peptic Ulcer. J. T. Mason, Seattle.—p. 244.
Treatment of Postoperative Progressive Gangrenous Infection of Skin and Subcutaneous Tissue with Blood from Immunized Donors. J. G. Probstein and G. Seelig, St. Louis.—p. 247.
*Intestinal Kinking. N. M. Guiou, Ottawa, Ont.—p. 252.
*Cure of Intractable Vesicovaginal Fistula by Use of Pedicled Muscle Flap. J. H. Garlock, New York.—p. 255.
*Resection of Cecum and Ascending Colon: How Mortality May be Reduced by Modification of Usual Operation. A. A. Salvin, New York.—p. 261.

Leukoplakia of Urinary Organs.—Kretschmer thinks that leukoplakia of the urinary organs probably occurs more frequently than we believe. Leukoplakia may occur in association with various lesions of the urinary tract, such as stone, infection and tuberculosis, or it may be the only lesion present. As various types of organisms have been found in cases of leukoplakia, it has not as yet been determined what relation if any exists between the condition and the organism found. In Kretschmer's series there were twice as many males as females.

Treatment of Derangements of Knee Joint.—Harbin emphasizes the importance of early surgical correction of complete lacerations of the internal lateral ligament and capsular tears of the knee joint in preference to fixation and apparatus alone. There has been a considerable increase in the incidence of these injuries as a result of the greater number of automobile accidents. Late repair is rarely so satisfactory as the immediate approximation of the torn structures and, further, it is the impression that these patients so treated suffer a shorter period of disability. Two representative cases from a group of sixteen are reported in detail. An unusual laceration of the posterior cornua of an internal semilunar cartilage is discussed; the persistent pain even with the part fixed was explained by the position of the torn cornua. Removal of the cartilage gave complete relief. Several different types of loose bodies in the knee joint are considered; their removal resulted in complete return of function. Synovectomy of the knee joint is considered; a patient with villous arthritis and hydrops was subjected to this type of operation and satisfactory results were obtained.

Effect of Iodine and Thyroid Feeding on Thyroid.—Mosser states that: 1. In the experimental animal, iodine stimulates the cells to produce colloid. 2. Colloid retention compresses and flattens the cells of the acini. 3. The same effect occurs from iodine administration in the presence of experimental hyperthyroidism. 4. Prolonged iodine administration to a hyperthyroid animal produces a stage of exhaustion in the gland. 5. The effect of iodine on the normal gland is similar to that in the animal. 6. The effect of iodine on the hyperplastic toxic goiter is similar to that obtained in the normal gland of the dog. 7. After prolonged administration of iodine (from three to twelve months) to the patient with hyperplastic toxic goiter, a stage of exhaustion is noted. This is similar to that produced in the animal by prolonged feeding with thyroid extract and iodine. The clinical status of the patient is not proportionate to the histologic picture when iodine has been taken for a prolonged period. A theory to explain the action of iodine in the patient suffering with hyperthyroidism is presented. When iodine is first given, the cells are stimulated to secrete an excessive amount of colloid. This colloid fills the acini and mechanically compresses the lining cells, thus reducing their secretory power. Less thyroxin is produced, and the patient shows clinical improvement. Gradually the cells adjust themselves to the changed condition and resume their secretory power. The amount of thyroxin is thus again increased and the toxic symptoms increase proportionately. Further iodine medication fails to alter the production of thyroxin but does continue to stimulate colloid production. After prolonged iodine administration the cells become exhausted, can no longer produce colloid, and on continual iodine stimulation they degenerate. However, even in the stage of exhaustion, they are still quite capable of carrying out their pathologic function, i. e., production of excessive amounts of thyroxin. The microscopic picture, which is usually interpreted as a specific effect of iodine on the thyrotoxic producing properties of the cells, is in reality the effect of prolonged and excessive colloid production.

Effect of Compound Solution of Iodine on Exophthalmic Goiter.—Thirty exophthalmic goiters removed after Plummer's treatment were compared by Hellwig with thirty glands removed without previous iodine medication. Most of the observations described by Rienhoff could not be confirmed. After Plummer's treatment, no changes in the vascularity and in the amount of fibrous tissue were found. The acini were not round, smooth-walled and of regular size and form. Neither was the epithelium flat or cuboidal, nor were the nuclei small, irregular and pyknotic. A formation of adenoma-like tumefactions and colloid cysts visible with the unaided eye did not occur in his material. In 84 per cent of the glands removed after Plummer's treatment, the only definite difference as compared to untreated cases was found in the appearance of the colloid. The acini of these glands had more and higher concentrated content in spite of the fact that the hyperplastic character of the glands was not altered. These observations corroborate Albert Kocher's observation that most of the exophthalmic goiter glands removed after iodine medication show distinctly more stained colloid than those without. Therefore, if the liquefaction of the colloid is regarded as the most characteristic feature of the exophthalmic goiter, Hellwig doubts that the change in the amount and quality of the colloid which follows Plummer's treatment explains the clinical improvement completely. The fact that four patients improved very well on compound solution of iodine but did not show thick colloid in the glands, and that one patient did not improve on iodine but had a gland rich in concentrated colloid, suggests that this problem is much more complicated and will not be solved by the anatomic method alone.

Newer Aspects of Liver Disease.—Andrews et al. hold that a protein from the liver is passed in the urine in the early stages of certain hepatic diseases. This leakage of protein from the liver is due to a disturbance of the mineral salt balance.

Effect of Ovarian Irradiation on Offspring.—Murphy concludes that irradiation of pregnant animals or human beings is a procedure extremely dangerous to the health of the offspring concerned (61.3 per cent defective) and in the case of human beings ought not be undertaken unless such existing pregnancies are to be terminated artificially prior to the period of viability of the child. As yet, it cannot definitely be stated that preconception maternal pelvic radium or roentgen-ray irradiation is or is not prejudicial to the health of subsequent children.

Results of Gastric Exclusion.—Experience with forty cases leads Devine to say that the results of gastric exclusion are just the same as for a partial gastrectomy of the same extent. Like partial gastrectomy for duodenal ulcer, if gastric exclusion is too limited, there is danger of the occurrence of jejunal ulcer because there is insufficient reduction of acid. When from one half to two thirds of the stomach has been excluded in the oblique exclusion, a uniform and satisfactory result both immediate and remote has been obtained. In fact, it will give the very same results as Finsterer's partial gastrectomy and duodenectomy for duodenal ulcer, with half the operative risk. As far as experience goes, this operation has been found to be practically free from any unpleasant after-effects that often attend gastro-enterostomy.

Intestinal Kinking Cause of Gas Pains.—Guiou asserts that kinking and not paralytic ileus is the pathologic basis of ordinary postoperative gas pains, distention and obstruction. The occurence of kinking can be rendered less likely by keeping down the intestinal caliber by diminishing gas production with acidophilus milk, by applying loose postoperative dressings, especially over the pelvis, and by eliminating early the gas formed during the period of inhibition. When intervention is imperative, the question of doing a catheter enterostomy pre-

vious to obstruction-relieving relaparotomy should be seriously considered.

Treatment of Intractable Vesicovaginal Fistula.—Garlock reports a case of the cure of a large urethrovesicovaginal fistula by the utilization of a pedunculated muscle flap taken from the inner side of a thigh in the form of the gracilis muscle. In addition, use was made of continued intravesical suction extending over a period of twenty-four days without any evidence of vesical infection. It is felt that the observations presented constitute a new and additional concept in the management of cases of intractable vesicovaginal fistula.

Resection of Cecum and Ascending Colon.—Resection of the cecum and part of the ascending colon is usually indicated for malignant disease in this locality, also for tuberculosis of the cecum and chronic ileocolic intussusception. In malignant disease, it relieves intestinal obstruction, prolongs life, and greatly lessens the patient's discomfort. Although the end-results of ileocecal resection are good, there is a high operative mortality following the usual operation. Infection from fecal contamination, surgical shock and toxemia from temporary intestinal obstruction play a large part in causing the high mortality from ileocecal resection. Salvin finds that, by reversing the usual procedure and performing the ileocolic anastomosis before excising the cecum, we may greatly reduce the mortality. Should the patient's condition become alarming during the course of the operation, the latter may be discontinued at once. Furthermore, the danger of infection and toxemia from temporary intestinal obstruction is greatly diminished.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

16: 1-320 (July) 1928

The Surgeon's Mate (by John Woodall). D. Power.—p. 1.
Invasion of Skull by Dural Tumors. J. Taylor.—p. 6.
Stump of Ureter After Nephrectomy: Indications for Primary Nephro-Ureterectomy. F. Kidd.—p. 22.
Early Development of Hospitals (Before 1348). G. Parker.—p. 39.
Urethral Diverticula. T. B. Mouat.—p. 51.
Diverticulosis of Appendix and Pseudomyxoma Peritonei. A. J. Gardham, C. C. Choyce and M. Randall.—p. 62.
Veins of Diploe. G. Jefferson and D. Stewart.—p. 70.
Pseudocoxalgia: Twenty-Five Cases. C. L. Pattison.—p. 89.
Staphylococcal Suppurative Nephritis (Carbuncle of Kidney). B. M. Dick.—p. 106.
Calcification of Gallbladder: Case. J. J. Robb.—p. 114.
Fractures of Upper End of Femur. J. J. M. Shaw.—p. 120.
Cleft Palate. W. E. M. Wardill.—p. 127.
Direct Skeletal Traction in Treatment of Fractures. E. W. Hey Groves.—p. 149.
Large Single (Nonparasitic) Cyst of Spleen: Case. A. W. Sanders.—p. 158.
Multiple Chondroma: Case. J. W. Thomson.—p. 160.
Sarcoma of Anus: Case. R. J. Willan.—p. 161.
Tumor of Carotid Body. F. Harvey.—p. 163.
Treatment of Raynaud's Disease by Periarterial Sympathectomy. H. Bailey.—p. 166.

British Medical Journal, London

2: 139-182 (July 28) 1928

Some Reactions and a Retrospect. E. Maclean.—p. 139.
Modern Treatment of Hernia by Trusses. W. M. Eccles.—p. 144.
*Mechanism of Blackwater Fever and Certain Allied Conditions. D. B. Blacklock and G. Macdonald.—p. 145.
Guillotine and Ethyl Chloride for Removal of Tonsils and Adenoids. C. R. Sandiford and J. C. Clayton.—p. 149.
Eclampsia: Complete Postmortem Examination. B. Solomons and F. S. Bourke.—p. 152.
Lobar Pneumonia as Infectious Disease. C. H. Whittle.—p. 153.
*Multiple Traumatic Abdominal Aneurysm. J. McFadzean.—p. 154.
Intestinal Obstruction: Spontaneous Recovery. E. P. Coyne and A. L. Kelly.—p. 154.

Mechanism of Blackwater Fever.—Points of resemblance between blackwater fever and certain other hemoglobinurias and hemoglobinemias are indicated by Blacklock and Macdonald. These points include the presence of an anoxemic state, and a resultant increase in sarcolactic acid either locally or generally. They produce evidence from experiments, both in vitro and in vivo, that sarcolactic acid is hemolytic—in the former case to whole human blood, and in the latter to whole animal blood. Intravenous injections of sarcolactic acid into rabbits have produced hemoglobinemia and hemoglobinuria, followed by recovery of the animals. On the evidence brought forward the authors conclude that sarcolactic acid is the causal agent in the production of the hemolysis in blackwater fever and these hemoglobinurias.

Multiple Traumatic Abdominal Aneurysm.—McFadzean reports the case of an old man who died suddenly one morning when attempting to rise from bed. Some time previously a large abdominal tumor had been found which, because of the expansile nature of its pulsation, had been diagnosed as an abdominal aneurysm. The manner of his death suggested that this had ruptured, and the necropsy proved the assumption to be correct; but this diagnosis was by no means complete. Instead of one aneurysm there were four, occupying the whole extent of the abdominal aorta and the greater part of the external and common iliac arteries. The peculiar point was noted that, whereas all the large arteries of the abdomen, from the origin of the celiac axis to the termination of the external iliac arteries on either side, were degenerate, calcified, irregularly dilated and aneurysmal, the thoracic aorta and the other large vessels of the body showed only a slight degree of atheroma, which might be considered as even less than normal for a man of his age and occupation. The patient had been an acrobat, a strong man and trapeze artist who, in his day, had acquired not a little fame. Almost every day for twenty years this man was spending some time swinging and turning on a hard trapeze and rolling round the instrument on his stomach, which may have been a probable cause of this extraordinary aneurysmal condition of those vessels which, in the process of his acrobatics, would be most exposed to injury. There were no postmortem signs of syphilis.

Edinburgh Medical Journal

35: 429-496 (Aug.) 1928

Etiology of Tumor Growth from Evolution Standpoint. A. James.—p. 429.
Cocaine Intoxication and Poisoning in Local Anesthesia. D. M. Greig.—p. 444.
*Tuberculous Infection in Industrial School Children. A. F. Hewat.—p. 451.
Fracture Dislocation of Talus: Two Cases. W. Mercer.—p. 465.
*Treatment of Varicose Ulceration by Intravenous Injections of Quinine. K. P. Brown.—p. 472.

Incidence of Tuberculous Infection in Industrial School Children.—A group of school boys, living under excellent hygienic and disciplinary conditions, were subjected by Hewat to the Pirquet skin test for tuberculous infection. In forty-four cases with easily palpable cervical glands, twenty-eight showed a positive and sixteen a negative Pirquet reaction. Only three boys with tiny cervical glands showed a positive reaction, the three being exceptional physically.

Quinine Injections for Varicose Ulcerations.—Brown has treated twelve cases of varicose ulceration by injection of a quinine solution. With the patient in the upright position a total amount of 2 cc. is injected on the first occasion, usually 0.5 cc. at four different points in the varix. These injections are continued at weekly intervals until thrombosis of the veins is complete. Ten patients have been completely cured. In one patient the varicose veins became thrombosed, but the ulcer, after slow healing, rapidly broke down again. This patient was one of the first to be treated; there was a history of chronic edema of the leg of considerable duration, and therefore the patient was probably not a suitable one for this method of treatment. In the only other unsuccessful case, injections produced neither venous thrombosis nor healing of the ulcer.

Lancet, London

2: 157-210 (July 28) 1928

Some Reactions and a Retrospect. E. Maclean.—p. 157.
Public Action in Regard to Cancer. G. S. Buchanan.—p. 160.
Chemotherapy in Malignant Disease: Lead. W. B. Bell.—p. 164.
"Contraction Ring": Two Cases: Treatment, Especially by Amyl Nitrite. C. R. Croft.—p. 166.
*Stereoscopic Radiography of Coronary Circulation. J. S. Campbell.—p. 168.
*Serum Prophylaxis in Measles. D. S. Sutherland and J. S. Anderson.—p. 169.
*Combined Vital and Nonvital Method of Staining Corpuscles. A. C. Alport.—p. 170.

Stereoscopic Study of Heart.—In a study of ninety-two hearts by this method, Campbell observed that an early sign of coronary disease was a narrowing of the lumen of the small twigs of the coronary vessels. This gave these small vessels an appearance of having been nipped just at the point of leaving the parent vessel. Numbers of hearts were found with partial or total occlusion of a coronary artery or its branches. Five of these presented a large area of infarction, others fibrous plaques in the myocardium, while others did not show any lesion apparent to the naked eye. These hearts without exception had highly developed compensating anastomotic channels, a beautiful subendocardial network in a case of gross infarction being sufficiently rich to preserve the lining layer of the organ. Two specimens of complete right coronary occlusion are of especial interest. The opaque substance injected into these through the patient's left coronary artery was found to have filled the occluded right coronary. This occurred through connecting channels chiefly in the interventricular septum.

Serum Prophylaxis in Measles.—Sutherland and Anderson have found measles convalescent serum to be a safe and reliable prophylactic remedy, if given in adequate dosage within the first three days of the incubation period. In a considerable number of instances, which are cited, the serum, obtained from adult convalescents, was administered subcutaneously and a uniform dose of 10 cc. was employed irrespective of age and the length of exposure. Untoward effects were not noted, nor were symptoms of serum sickness observed in any case.

Combined Vital and Nonvital Method of Staining Corpuscle.—The method used by Alport consists in: (1) staining a slide with brilliant cresyl blue and making a blood film on this stained slide, or staining a drop of blood with cresyl blue and making a film in the ordinary way; (2) counterstaining the film with Leishman's stain. A film stained with Leishman's stain only, and showing marked polychromasia, will, when stained by the cresyl blue Leishman method, show with few exceptions reticulocytes in place of the polychromatophilia. This probably indicates that the ordinary polychromasia is merely the ineffective staining of reticulocytes by Leishman's method.

2: 211-264 (Aug. 4) 1928

*Epidemiology of Children's Infectious Diseases. U. Friedemann.—p. 211.
*Treatment of Rheumatic Carditis. G. Bourne.—p. 217.
Intrinsic Cancer of Larynx: Occurrence of Impaired Mobility of Affected Cord. S. Thomson.—p. 220.
*Enlarged Prostate and Its Nonoperative Treatment. F. H. Humphris.—p. 221.
Aleukia Hemorrhagica: Myelophthisis: Case. W. J. S. Reid.—p. 223.
*Cerebral Embolism Due to Ununited Fracture of Clavicle and Subclavian Thrombosis. A. G. Yates and D. Guest.—p. 225.
Ephedrine and Ephetonin. F. R. Curtis.—p. 226.

Path of Scarlatina Contagion.—Friedemann analyzed the path of scarlatina contagion. The streptococci were identified by the Dick test. The skin scales previously purified did not contain any streptococci; therefore they do not eliminate the scarlatinal microbe. He did not find any streptococci in the urine. The principal focus is the tonsil, where he found them in all cases. Besides that they were only found in the pus. The transmission occurs principally by droplet infection, and infection through objects in common use must be considered. In the beds, on the walls, and in the air of rooms occupied by scarlatina patients he found numerous streptococci. Friedemann says he is inclined to deny that the occurrence of hemolytic streptococci in the throat has in itself diagnostic value. Although *Streptococcus hemolyticus* does not normally belong to the bacterial flora of the human throat, it is met in other diseases which must be excluded in diagnosing scarlatina, e. g., common angina. The occurrence of hemolytic streptococci is therefore of no diagnostic value in acute scarlet fever; on the other hand, the absence of hemolytic streptococci in the throat makes scarlatina improbable. This may be of practical value. If a patient has just recovered from scarlet fever one cannot be quite sure that the hemolytic streptococci in his throat are scarlatinal, but it can be concluded that a convalescent in whose throat streptococci are not found is completely free of scarlatinal microbes. Friedemann has found hemolytic streptococci in the throats of 100 per cent of convalescents on the day of their leaving the hospital after six weeks. This easily explains the frequency of return cases. He concluded that the patients failed to lose the microbes because they were constantly being reinfected. He therefore organized an intermediate "ventilation" block (Lüftungsstation), to which the patients who had but few microbes in their throats were transferred. Recent scarlatina cases were not admitted to this block. The consequence was that the majority of the patients could be dismissed after a six weeks' stay, free from streptococci. Many of them lost the streptococci after from three to five weeks. He has made it a practice of dismissing patients from the intermediate block irrespective of the period of illness and the existence of desquamation if the throat has proved free of hemolytic streptococci at three examinations. Among thirty-nine patients dismissed without bacteriologic examination there were four return cases. Among fifty patients dismissed after examination, no return cases occurred. A bacteriologic control is therefore a far greater guarantee against return cases than routine dismissal after six weeks and after disappearance of the scales.

Treatment of Rheumatic Carditis.—One of the known facts in the pathology of acute rheumatic carditis is the close relation it bears to tonsillar disease. Bourne reports that the practice at the East London Hospital for Children is to remove the tonsil when there is evidence of tonsillar disease, provided the rheumatism is sufficiently inactive. The measure is not devoid of danger, and great care is necessary in estimating the risk of lighting up a fresh spell of infection. The guiding principle is the degree of active carditis. The outstanding danger of tonsillectomy in a rheumatic child is the possibility of lighting up a dormant acute rheumatism. If a state of sufficient quiescence has not been reached, the operation may be followed immediately by fever, tachycardia, cardiac dilatation and the appearance of a fresh crop of nodules. If, however, a state of sufficient quiescence has been attained, and if adequate salicylate dosage is given before and after tonsillectomy, such troubles can be avoided. The dose should be from 15 to 20 grains (1 to 1.3 Gm.), with double the quantity of sodium bicarbonate, two-hourly by day, and four-hourly by night if the patient is not asleep. A potassium permanganate gargle is freely used.

Nonoperative Treatment of Enlarged Prostate.—Humphris relates his experience with electricity (sparking), roentgen ray and diathermy. Much benefit has been obtained by the use of roentgen rays, but cases must be carefully selected. The simple adenomas are extremely sensitive, but the presence of fibrous tissue reduces the sensitivity, so that adenofibromas react in inverse proportion to the amount of fibrous tissue present. When the prostate is large and soft, good results can be expected, but roentgen rays are of little value in the treatment of hard, bossed glands elevating the floor of the bladder. Suitable cases respond rapidly; the nocturnal frequency is diminished after only a few irradiations, and reduction in the size of the gland can soon be appreciated. Cystitis is a contraindication to roentgen-ray treatment, as a severe exacerbation is likely to follow the application of the rays. In cases of gonococcal prostatitis, diathermy is the treatment to be adopted.

Cerebral Embolism Due to Fracture of Clavicle.—The observations in the case cited by Yates and Guest, taken in conjunction with the clinical picture, suggest that the right clavicle (fractured no doubt during an epileptic fit and unnoticed by the patient) had at the time of the fracture or since caused injury to the right subclavian artery resulting in thrombosis. The resultant embolus in the basilar artery is readily explained by the escape of a fragment of the thrombus up the right vertebral artery.

Quarterly Journal of Medicine, London

84: 459-534 (July) 1928

*Action of Epinephrine Hydrochloride on Human Heart. W. E. Hume.—p. 459.
*Diaphragmatic Paralysis as Therapeutic Measure in Intrathoracic Disease. A. J. Campbell.—p. 463.
Extensibility of Human Arteries. A. Hemingway, B. A. McSwiney and P. R. Allison.—p. 489.
*Histologic and Radiographic Appearance of Infantile Scurvy (Barlow's Disease). H. A. Harris.—p. 499.
*Use of Synthalin in Treatment of Diabetes Mellitus. G. Graham and G. C. Linder.—p. 509.
Sprue: Analytic Study of One Hundred and Fifty Cases. G. C. Low.—p. 523.

Action of Epinephrine Hydrochloride on Human Heart.—Hume relates his observations on three persons after the injection of 2½ minims (0.15 cc.) of epinephrine hydrochloride. Three examples of the effects of epinephrine hydrochloride on the heart were described. Electrocardiograms were made immediately after the injection. In one case ventricular complexes of various forms dominated the picture. They appeared to arise from the ectopic foci in the ventricles, and were grouped very regularly. In the upper record the first three complexes showed an auricular rhythm of ectopic origin followed by ectopic ventricular beats, but it is evident that the normal rhythm was trying to reassert itself, and in the lower part of the tracing the heart was beating normally, though rapidly, except for a short break of tachycardia after the third normal response. In the second case there was auriculoventricular dissociation. In the third case the auricles fibrillated.

Therapeutic Diaphragmatic Paralysis in Treatment of Tuberculosis.—Thirty-one cases, mainly of pulmonary tuberculosis and bronchiectasis, treated by therapeutic diaphragmatic paralysis, are reported by Campbell. In twenty-seven of these the operation was phrenic exeresis or evulsion; in the remaining four simple phrenicotomy. Of the thirty-one patients treated, benefit resulted in twenty-four; of the seven patients who did not benefit, in three a paralysis was not obtained, while in three of the remaining four the rise was 3 cm. or less. The impression conveyed by this series of cases is that diaphragmatic paralysis is of more value in the basal case of postpneumonic bronchiectasis than it is in tuberculosis. Six patients with bronchiectasis have been so treated; in three all symptoms disappeared following phrenic evulsion; in the remaining three the intratracheal injection of iodized oil showed that the disease extended into the upper lobe and that thoracoplasty was necessary. This was subsequently done in all three: one of these patients is now practically free from symptoms which have persisted more or less since birth. In a case of hydatid disease of the lung, it was found valuable in helping to occlude the cavity following the removal of the cyst. As regards the patients with pulmonary tuberculosis who were treated, from the results it would appear that, speaking generally, permanent benefit is not to be expected from phrenic evulsion, independently of other measures (e. g., pneumothorax or thoracoplasty), unless the lesion is chiefly basal. Two patients of this type were treated, with beneficial results in each case. In five cases phrenic exeresis was performed because pneumothorax had failed, and some improvement followed in four. With regard to its use as a symptomatic measure for relief of symptoms, in one case a troublesome cough was relieved after phrenicotomy. In two cases in which the indication was persistent pleural pain, in one the pain was relieved, while in the other there was no effect as a permanent paralysis was not produced (this was one of the earlier cases in which phrenicotomy alone was used). In one case it was used as a preliminary to pneumothorax, and assisted in producing a basal collapse where otherwise the lung would have been held out by the diaphragm. Basal adhesions in artificial pneumothorax were responsible for the operation in two cases; in one case (already quoted) it was successful, in the other there was little improvement in the condition, this being due to a large portion of the upper lobe remaining uncollapsed. In ten cases it was used in association with thoracoplasty; in all it materially assisted in producing a basal collapse, and diminished the severity of the operation by rendering a complete rib resection unnecessary.

Pathology of Scurvy Rickets.—In a case of scurvy rickets, the formation of gelatinous marrow, with the failure of normal erythropoiesis, is shown by Harris to be an essential part of the resulting pathologic picture, and of the anemia in particular.

Use of Synthalin in Diabetes Mellitus.—Observations made by Graham and Linder on twelve patients under carefully controlled conditions show that, in eight, synthalin caused a very definite and apparently beneficial change in their carbohydrate metabolism. In one instance a dose of 50 mg. of synthalin was able to replace from 40 to 45 units of insulin without the blood sugar exceeding the normal limit. In four cases the synthalin had an action corresponding to 15 units of insulin or less, or even no observable action at all. The authors state that synthalin should be used only if the patient will not try insulin.

"Gann" Japanese J. Cancer Research, Tokyo

22: No. 3, 1928

*Cancer Mortality in Japan. H. Kusama.
Immunity of Animal Tumors. F. Ishiwara.
Study of New Method of Treatment for Malignant Neoplasms (Tumor Emulsion). Second Report. F. Nakamura.
Tumor-Like Teratoma Produced by Means of Inoculation of Embryonic Tissues. M. Ide.

Cancer Mortality in Japan.—Kusama reports that the mortality from cancer for all age groups in Japan during the period 1905-1924 showed a slight increase from 1905-1920, after which year, up to 1924, it remained stationary. Cancer mortality revealed a considerably higher rate in urban areas than in rural, for the age group 60 years and over; it was, however, practically the same in both areas for the age group 40 years and over. Cancer of the stomach and liver is the most common form of the disease of both sexes in Japan, but relatively more common among males than among females. Cancer of the female reproductive organs comes next in frequency. Breast cancer appears to be remarkably less frequent than in European countries. Cancer of the esophagus is more prevalent among males than among females. Cancer of the digestive tract is common in Japan. A remarkably low rate is attributed to cancer of the breast in Japan as compared with that of other countries. Cancer of the female reproductive organs is somewhat more frequent in Japan than elsewhere, though the death rate ascribed to this form of the disease is slightly in excess of that recorded in England and Wales.

Bulletins et Mém. de la Soc. Méd. des Hôpitaux, Paris

52: 1097-1158 (July 5) 1928

*Gangrene and Cancer of Lung. A. Lemierre and A. Lambling.—p. 1097.
*Cardiac Metrorrhagia. E. Bernard and Desbuquois.—p. 1106.
Megacolon Due to Compression of Rectum by Tumor. Macaigne and J. Fleury.—p. 1113.
Suppurative Form of Cancer of Lung. P. Harvier and A. Lichtwitz.—p. 1116.
Solar Urticaria. P. Vallery-Radot, P. Blamoutier, J. Stehelin and J. Saidman.—p. 1122.
Osteopsathyrosis. P. Vallery-Radot, J. Stehelin and J. Mawas.—p. 1126.
*Congenital and Familial Adiposogenital Dystrophy. A. Ricaldoni and A. Isola.—p. 1131.
Platform for Recording Romberg Phenomenon. A. Ricaldoni.—p. 1138.
Liver Treatment of Acute, Febrile Anemia. Benhamou, Jude and Gille.—p. 1145.
Spontaneous Cure of Lung Abscess. L. Boidin and J. Fontaine.—p. 1149.
*New Method for Withdrawing Blood. Landau.—p. 1154.
Abdominal Aortitis. I. Hatzieganu and E. Anca.—p. 1155.

Development of Cancer on Recurrent Gangrene of Lung: Renal Metastases with Secondary Gangrene.—Lemierre and Lambling report the case of a woman, aged 33, who for two years had had a focus of subacute gangrene in the right lung. In their examination, the authors found marked pulmonary sclerosis. While the patient was under their observation, a subphrenic pyothorax developed and a septic embolism of the left kidney occurred. The pulmonary infection and the renal suppuration were both due to the same micro-organism. Autopsy confirmed the diagnosis and revealed an unsuspected neoplastic process in the lung and in the wall of the kidney abscess.

Metrorrhagia of Cardiac Origin.—Bernard and Desbuquois describe the case of a woman, aged 22, who entered the hospital because of severe metrorrhagia. Calcium chloride, serum, and whole blood had no effect on the hemorrhage. It was then noted that the patient had a mitral lesion. At the time of her entrance into the hospital, she had presented no signs of cardiac insufficiency but had had a pulse rate of 90 with attacks of paroxysmal tachycardia every two days. Cardiac stimulation (digitalin) was therefore begun. The hemorrhage, which had lasted twenty-three days, ceased in forty-eight hours. This case illustrates a form of cardiac insufficiency in which the first symptom to appear is metrorrhagia.

Congenital and Familial Disease Characterized by Adiposogenital Dystrophy Associated with Retinitis Pigmentosa and Polydactylism.—Ricaldoni and Isola report the occurrence of marked adiposogenital dystrophy, retinitis pigmentosa, and polydactylism in two brothers and two sisters the mother and father of whom were first cousins.

Simplified Method for Withdrawing Blood for Blood Tests.—In Landau's method a trocar is passed through the

rubber stopper closing a sterilized test tube. A needle with a flange at its middle is then inserted into the trocar. Using the needle-armed test tube in the manner in which a syringe is manipulated the operator forces the needle into the vein. A special groove in the trocar allows air to leave the test tube as the blood enters. When the needle is withdrawn, the elasticity of the rubber closes the opening in the stopper. An adapter permits one to withdraw cerebrospinal fluid with an ordinary needle.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

54: 809-859 (June 16) 1928

Osteomyelitis of Cervical Vertebrae. Alglave.—p. 810.
Recurrent Diaphragmatic Hernia. R. Leriche.—p. 812.
Intestinal Obstruction from Adhesion of Small Intestine to Free Stump of Appendix. J. Fiolle and L. Hayem.—p. 813.
Intestinal Obstruction Following Removal of Perforated Appendix. G. Lardennois.—p. 816.
Resection of Diaphysis in Acute Osteomyelitis. G. Carajannopoulos.—p. 823.
Tendon Suture: Three Cases. Cunéo.—p. 826.
*Pseudomyxoma of Peritoneum. P. Lecène.—p. 830.
Suppurative Sigmoiditis. P. Lecène.—p. 834.
Duodenal Ulcer: Twenty-Four Cases. J. Okinczyc.—p. 837.
Acute Typhlitis with Normal Appendix. J. Okinczyc.—p. 851.
External Exostoses of Cranium. Auvray.—p. 853.

Pseudomyxoma of the Peritoneum.—Lecène reports two typical cases of pseudomyxoma of the peritoneum following rupture of mucoid cysts of the ovary. He believes that whenever the surgeon opens the abdomen and finds a true gelatinous ascites, characterized by a sticky, viscid fluid adherent over the entire peritoneum, in which it causes only a diffuse redness, he should always think of a ruptured cyst of the ovary or of a ruptured cystic appendix; these organs should be examined at once. The only way to prevent recurrence of the gelatinous intraperitoneal effusion is to remove the ovarian cyst or distended appendix completely. Drainage of the peritoneal cavity in these cases is always useless and frequently dangerous.

54: 897-928 (June 30) 1928

Intestinal Obstruction Following Appendectomy. T. de Martel.—p. 898.
Ureterographic Study of Hydronephrosis. M. Chevassu.—p. 900.
*Muscle Disinsertion in Subtrochanteric Fractures of Femur. C. Viannay.—p. 906.
Accidents in Cholecystectomy. A. Schwartz and S. Huard.—p. 914.
*Epithelioma of Small Intestine. P. Fredet.—p. 920.

Temporary Detachment of the Pelvitrochanteric Muscles in the Treatment of Subtrochanteric Fractures of the Femur.—In the treatment of subtrochanteric fractures of the femur, Viannay prevents the abduction and the external rotation of the small, upper fragment by dividing the muscles which originate on the pelvis and are inserted on the trochanters. Unless this is done, it is very difficult to place the long diaphyseal fragment of the femur in exact alinement with the short epiphyseal fragment; the end-result is frequently a more or less marked curvature of the thigh with a marked shortening of the leg. With the hitherto unpublished method described by the author and used by him for the past nineteen years little difficulty is experienced in getting the fragments in perfect alinement and keeping them in place until bony union has occurred. The essential feature of the operation, the technic of which is described in detail, is the subcapsular separation of the periosteum. Inasmuch as the continuity of the tendinous fibers with the periosteum is preserved, the muscles reinsert themselves after a period of several weeks, thus giving enough time for the fracture to unite and rendering unnecessary a second operation to reinsert the muscles.

Stenosing Epithelioma of the Small Intestine.—In the case reported by Fredet the clinical signs of the epithelioma, which was located about 4 meters from the cecum in a man, aged 48, were complete: intestinal hemorrhage; phenomena of incomplete obstruction; perceptible tumor located high up near the midline and freely movable transversely; cachexia: the patient whose normal weight was 100 Kg. now weighed only 55 Kg. The operation consisted of the resection of a 30 cm. long segment of intestine, containing the tumor in its center, and the mesentery attached to it. The clinical diagnosis was confirmed by histologic examination of the tumor by two pathologists. Sixteen months after the operation, the patient had gained 45 Kg. At a second operation, performed seven years later for appendicitis, signs of recurrence were not found.

Journal de Médecine de Lyon, Lyons

9: 365-398 (July 5) 1928

*Zoöphilic Mosquitoes. J. Guiart.—p. 373.
Pathogenesis of Diabetic Coma. P. Savy and H. Thiers.—p. 383.
Roentgenologic Appearance of Pleuritis of Posterior Mediastinum. C. Roubier and M. Carle.—p. 387.
Ringworm of Scalp. G. Massia.—p. 395.

Mosquitoes, Domestic Animals and Malaria.—While visiting at a country seat situated in the middle of a region containing a great many ponds, Guiart noted the presence in the house of a large number of Anopheles. His hosts stated, however, that they were never bitten by these mosquitoes. The author found that the explanation of this unusual condition was quite simple; the peasants of that region, in which malaria had previously been prevalent, had of late taken up on a large scale the breeding of domestic animals and the mosquitoes had quickly developed a preference for animals instead of man. Such mosquitoes are known as zoöphilic. The protection of man by the presence of horses, cattle, sheep, hogs, rabbits and poultry is now a demonstrated fact. The degree of protection is inversely proportional to the distance between the house and the stables, rabbit pens, and chicken-coups, and it is particularly high when these latter are located between the house and the collections of stagnant water where the mosquito breeds. The author considers that the protection of man by means of animal screens constitutes one of the most effective of antimalarial measures and that it alone is sufficient to cause the disappearance of malaria in infested regions.

Paris Médical

2: 1-36 (July 7) 1928

Diseases of Heart and Blood Vessels. P. Lereboullet and J. Heitz.—p. 1.
Angina Pectoris with Low Blood Pressure. L. Gallavardin and Z. Rougier.—p. 15.
Paroxysmal Arterial Hypertension. E. Donzelot.—p. 19.
*Thrombo-Angiitis Obliterans. R. Leibovici.—p. 21.
*Treatment of Paroxysmal Tachycardia. E. Géraudel and M. Mouquin.—p. 26.
Congenital Bradycardia. R. Giroux and L. Katsilabros.—p. 30.

Surgical Problem of Thrombo-Angiitis Obliterans.—Leibovici is of the opinion that in thrombo-angiitis obliterans one should not operate for a single trophic ulceration; gangrene of at least one toe must be present before surgical intervention is indicated. In cases of gangrene of a toe one should wait as long as possible for the elimination furrow. In patients who can afford prolonged treatment, amputation of the toe suffices. In poor patients or in patients in whom the furrow is not definite, it is better to amputate the foot at once using a heel flap, provided that the vitality of the latter can be demonstrated. In case of stationary gangrene involving the leg, a Syme operation can be tried; if the gangrene progresses, it is best to amputate the leg. Tests for the vitality of the leg determine whether a low or a high leg amputation should be performed. Gangrene which appears to be extending rapidly may even justify an amputation at the lower part of the thigh, particularly if the vitality of the leg appears doubtful. As a general rule, however, the more one sees of thrombo-angiitis obliterans the more conservative one becomes in its treatment.

Sudden Arrest of Attack of Paroxysmal Tachycardia Following Intravenous Injection of Quinine Dihydrochloride.—Géraudel and Mouquin's case was that of a woman, aged 29, who for four consecutive years had had several attacks of paroxysmal tachycardia. The attack under consideration had lasted four days and was the longest one she had ever had. All the common forms of treatment had been used without success. On entering the hospital the patient was given 0.25 Gm. of quinine dihydrochloride intravenously. No change in the cardiac rhythm was noted. Four hours later a second intravenous injection of 0.40 Gm. of quinine dihydrochloride was given. About thirty seconds later the tachycardia stopped suddenly, the pulse rate dropping from 196 to 110-120. With the return of normal rhythm the anxiety which the patient had experienced throughout the attack disappeared. The relief was permanent. In the quinine treatment of paroxysmal tachycardia the authors recommend that a small dose of from 0.20 to 0.30 Gm. of the dihydrochloride be given at first to test the susceptibility of the patient; if this dose is ineffective a second injection of from 0.40 to 0.50 Gm. is given four or

five hours later. If this second dose proves ineffective a third injection of from 0.60 to 0.80 Gm. can be tried several hours later, provided that the patient manifests no signs of serious intolerance. The injection should be made rather slowly but should not consume more than twenty seconds. A few seconds after the injection, the patient experiences a slight indisposition with a sensation of warmth but this lasts only about a minute. If more definite signs of intolerance, such as dizziness, nausea, and vomiting, develop, the dose should not be increased. When the arrest of the crisis is produced, it always occurs suddenly, about thirty seconds after the injection. Occasionally a case is met with in which the intravenous injection of quinine does not stop the crisis, but merely decreases the rapidity of the rhythm for a considerable time. This treatment is indicated particularly in severe attacks of paroxysmal tachycardia lasting more than twenty-four hours, and not amendable to the commonly used methods of treatment. The only absolute contraindication to the intravenous injection of quinine is auricular flutter without ventricular tachysystole.

2: 37-52 (July 14) 1928

Pathogenesis of Hypertension. V. Lassance.—p. 37.
Hypoglycemia-Producing Substances of Guanidine Group. H. Schwab. —p. 42.
*Synthetic Thyroxin. P. Sainton and P. Véran.—p. 48.
Marchoux's Disease and Leprosy. J. Markianos.—p. 51.

Therapeutic Action of Synthetic Thyroxin.—In their clinical studies Sainton and Véran found that ingested synthetic thyroxin produces practically the same effects as thyroid extract. It can be given by mouth over a long period of time without inconvenience provided that small and progressive doses are used and that the patients are observed carefully. The authors found that in patients previously treated with thyroid extract 1.00 mg. of synthetic thyroxin apparently produces an action almost analogous to that produced by 0.20 Gm. of the extract. They consider that in order to test the susceptibility of the subject, the initial dose of synthetic thyroxin in the adult should be 0.50 mg. The progressive increase in the dosage must be carried out with caution and under strict surveillance of the patient.

Presse Médicale, Paris

36: 929-944 (July 25) 1928

*Bouveret's Ulcerations in Typhoid Fever. J. Chalier and M. Levrat.—p. 929.
Gastralgia of Uterine Origin. P. Jacquet and C. Girode.—p. 930.
Mechanism of Amylase Action. Y. Schaeffer.—p. 931.
Relations Between Malta Fever and Epizoötic Abortion. A. Ravina.—p. 932.

Bouveret's Ulcerations in Typhoid Fever and Their Prognostic Value.—Chalier and Levrat noted Bouveret's ulcerations in eighty-three out of 605 cases of typhoid. These ulcerations are most commonly located on the anterior surface of the anterior pillars of the fauces; they are frequently bilateral and frequently occur on the inferior surface of the soft palate and even at the base of the uvula. On the anterior surface of the anterior pillars of the fauces, these ulcerations are oval-shaped with their long axis parallel to that of the pillars; their length varies from a few millimeters to 1 or 2 cm.; their edges are sharply demarcated and not undermined; the base of the ulceration is flat and only a little below the level of the neighboring mucosa and is whitish, whitish-gray or occasionally somewhat yellow. If an ulceration is scraped it is found that no induration is present and that the mucosa does not bleed. The ulceration is not painful; the patient does not complain of difficulty in swallowing; as a result the ulcerations must be sought for systematically, particularly since they cause no reaction in the regional lymph glands. They usually appear during the second week and simultaneously with the rose spots. Their duration is variable, usually from one to two weeks, and they disappear without having produced serious local disturbances and without leaving scars. In cases where the rose spots are questionable, the authors ascribe an absolute diagnostic value to these ulcerations. Compared with the cases of typhoid in which Bouveret's ulcerations do not occur, the cases in which they do occur: (1) are much more frequently of the severe, prolonged, and complicated type; (2) present a slightly higher mortality; (3) are much more frequently complicated by intestinal hemorrhage and particularly by intestinal perforation.

36: 945-960 (July 28) 1928

*Mental Disturbances in Pernicious Anemia. P. Émile-Weil and R. Cahen. —p. 945.
*Diuretic Action of Urea. D. Simici, I. Marcou and M. Popesco.—p. 946.
*Hematopoietic Hormone in Blood of Children with Accidental Anemia. K. R. Pacha.—p. 950.

Mental Disturbances in Pernicious Anemia.—According to Émile-Weil and Cahen, mental disturbances in pernicious anemia, although usually considered as rare and as terminal symptoms, occur frequently in the grave forms and may make their appearance at any stage of the disease. They may even dominate the clinical picture. It is in these cases that diagnostic errors are most commonly committed; many patients are considered "neurasthenic" when an examination of the blood would show that they are anemic. The mental disturbances in pernicious anemia vary from simple character modifications to dementia; they may be depressive or maniacal. Until recently the prognosis in these cases was bad. Under liver treatment, however, the disturbances disappear slowly, but completely and permanently.

Diuretic Action of Urea in the Treatment of Transudates and Exudates.—From an experimental and clinical study Simici et al. conclude: 1. Urea possesses a constant and energetic diuretic action both in the normal person and in patients with transudates and exudates (cases of atrophic cirrhosis and tuberculous pleuroperitonitis and pleuritis). 2. The diuresis is proportional to the quantity ingested. Sometimes the increase in the urinary output persists for twenty-four hours after the treatment is stopped. 3. The urea may be taken without any bad effects in daily doses of from 25 to 50 Gm. in three, four, and even seven day periods separated by several days of rest during which the patient can be given another diuretic. 4. In the doses indicated and in patients whose nitrogen permeability is normal, the urea produces only a slight and very transient increase in the blood nitrogen. This phenomenon results in none of the symptoms which occur in uremia. 5. The increase in the blood urea produced by the ingestion of large doses of urea disappears from twenty-four to forty-eight hours after the treatment is stopped. 6. The diuresis produced by the ingestion of the doses of urea indicated varies usually between 1,500 and 2,000 cc. The ingestion of 50 Gm. of urea by one patient was followed by a diuresis of 3,200 cc. in twenty-four hours. 7. Compared with various other diuretics the action of urea is the most energetic and particularly the most constant. The authors consider it to be one of the best diuretic agents for the treatment of transudates and exudates.

Hematopoietic Hormone in Blood of Children Rendered Anemic Accidentally.—Pacha noted that whereas the anemia of a child suffering from an ankylostoma infestation was readily and completely cured even before the patient was rendered free from parasites, the anemia of a child suffering from tuberculous cervical and mediastinal glands was only partly cured in spite of prolonged treatment. He therefore treated the latter child by injections of serum from the former one. Following three injections, an increase of 1,000,000 erythrocytes was noted and after two months of treatment the patient's erythrocyte count was 6,500,000. From this and another similar experience, the author concludes that the hematopoietic hormone which forms in the blood of laboratory animals following an artificially produced anemia also develops in the blood of children with accidentally produced anemia.

Schweizerische medizinische Wochenschrift, Basel

58: 693-716 (July 14) 1928

*Postoperative Roentgen-Ray Treatment of Cancer of Breast. H. Iselin. —p. 693.
*Diagnosis of Appendicitis in Children. E. Monnier.—p. 697.
*Embolism in Arteries of Extremities. M. Petitpierre.—p. 700.
Pathogenesis of Osteochondritis Dissecans in Endemic Cretinism. A. Scabell.—p. 703.
Cerebral Emphysema or Pneumocephalus with Syndrome of Compression Following Frontal Fracture. H. Paschoud.—p. 708.

Postoperative Roentgen-Ray Treatment of Cancer of Breast.—Iselin reports that of patients given postoperative roentgen-ray treatment in the years 1906 to 1913, 39 per cent remained clinically cured at the end of three years, 30 per cent at the end of five years. When compared with the corresponding figures of 18 per cent and 12 per cent for those not given roentgen-ray treatment, this shows a gain of 50 per cent. Of

twelve patients still living in 1918, seven were perfectly well in 1297; two had died of cancer; three, of other diseases.

Diagnosis of Appendicitis in Children.—Monnier's statistics indicate a mortality of more than 5 per cent among children operated on for appendicitis. Practically all deaths were apparently due to delay in operating. In some cases the physician was called too late, but in a number of cases there was an error in diagnosis. The most frequent cause of error was the position of the appendix behind the cecum or in the small pelvis. A rectal examination would have revealed this condition. In the presence of the triad of abdominal pain, vomiting and fever, one should always think of appendicitis. A number of other diseases, however, may show this same combination of symptoms—the most common being gastro-enteritis and colitis. Not only these and other abdominal diseases, but pneumonia, angina, pharyngitis, pyelocystitis and meningitis may present the symptoms of appendicitis. An interesting case is cited in which osteomyelitis was mistaken for appendicitis. The same confusion occurred in two cases of actinomycosis. While it is important to recognize all these possibilities, the danger of waiting until the situation is perfectly clear is greater than that of removing an appendix that may happen to be sound.

Embolism in Arteries of Extremities.—In two cases out of seven, Petitpierre obtained permanent results by embolectomy. Even though the end-results are successful in only about 30 per cent of cases, he considers the operation worth while in many other cases. Those persons who succumb to their primary disease in spite of successful embolectomy may at least be spared the physical and mental torture of gangrene. In many other cases, although the result is only partially successful, it practically amounts to a cure. Through prompt clinical treatment, more exact diagnosis, and perfected technic, the number of permanent successes may be greatly increased.

Klinische Wochenschrift, Berlin

7: 1257-1304 (July 1) 1928. Partial Index

History of Ehrlich's Side-Chain Theory. B. Heymann.—p. 1257. C'td.
*Compensation and Decompensation of Circulation. E. Wollheim.—p. 1261.
*Influence of Small Quantities of Water on Vessel Width. E. Flatow and M. Morimoto.—p. 1265.
Nitrogen Excretion into Stomach and Duodenum. H. Steinitz.—p. 1267.
Isamine Blue Treatment of Skin Carcinoma. C. L. Karrenberg.—p. 1269.
Question of Toxic Action of Synthalin in Diabetic Children. H. Hirsch-Kauffmann and A. Heimann-Trosien.—p. 1272.
Flexions of Uterus: Hysterosalpingography. L. Popović.—p. 1274.
Penetrability of Cellophan Dressings for Ultraviolet Rays. H. Schmidt, Peemöller and Dannmeyer.—p. 1276.
Measure of Oxygen Tension in Urine and Its Importance for Pathology of Circulation and of Kidney. F. Mainzer.—p. 1277.
Speed of Circulation in Exophthalmic Goiter and Myxedema. H. W. Bansi.—p. 1277.
*Sharp Foreign Bodies in Gastro-Intestinal Tract: Treatment. A. Böttner.—p. 1278.

Compensation and Decompensation of Circulation.—Cardiovascular decompensation is of two types: with increase or with decrease of the circulating blood. The first variety is found in hypertonia, in aortic insufficiency, etc. The patient is pale. Cyanosis, if present, is limited to the lips, toes and finger tips. The veins of the neck and the other subcutaneous veins are full. This form of decompensation responds well to digitalis, which causes more blood to be taken up by the storage depots and decreases the amount in circulation. In the second type of decompensation there is a decrease in the amount of circulating blood. This type is less frequent than the first. It is found chiefly in primary disturbances of the oxygen exchange in the lungs. It is the type of decompensation found in pulmonary stenosis and sclerosis, often in mitral stenosis, in emphysema, influenzal bronchitis and bronchopneumonia, in toxic infectious diseases and in circulatory shock. Patients with this type of decompensation are cyanotic over large skin areas. The blood contained in the subpapillary, capillary networks of these areas is withdrawn from the circulation. In the subcutaneous veins of these patients there is often little blood. In this type of decompensation digitalis fails; it may be harmful. Camphor preparations, caffeine and epinephrine act favorably; they empty the depots and increase the amount of blood in circulation. If digitalis must be given from the standpoint of the heart itself, its action on the circulation must be counteracted by large doses of camphor. The causes of decompensation must be sought not in the heart alone but in the entire circulation, including the peripheral. The four chief etiologic factors in decompensation are infection, physical overexertion, absolute arrhythmia, less frequently chemicotoxic injuries (antisyphilitic treatment, chronic alcoholism). The first two lead to increase in the circulating blood. The relation of the amount of circulating blood to the last two causes of decompensation is not yet entirely clear.

Influence of Small Quantities of Water on Vessel Width.—Using Schilf's method of perfusion on the living animal, Flatow and Morimoto found that injection of 1 cc. of distilled water into the femoral artery produced dilatation of the perfused vessels regularly in dogs and irregularly in cats. In rabbits the same procedure caused contraction of the vessels. They were unable to produce lowering of the blood pressure in dogs by water injections.

Sharp Foreign Bodies in Gastro-Intestinal Tract: Treatment.—Böttner has used successfully the following method of removing large sharp edged or pointed foreign bodies from the stomach and small intestine: He gives large amounts of thickened barium sulphate mush, until the foreign bodies are well embedded. Then, after injection of papaverin or atropine in sufficient doses to prevent reflex spasms, he administers a large dose of a laxative remedy which has the capacity of swelling in the intestine. Administration of the barium and the laxative are continued as needed.

Medizinische Klinik, Berlin

24: 1073-1110 (July 13) 1928. Partial Index

*Duration of Pregnancy in Determination of Paternity. H. Sellheim.—p. 1073.
Venereal Disease in Prostitutes. F. Pinkus.—p. 1077.
Effect of Aviation on Organism. W. Schnell.—p. 1078. C'cn.
Sugar Curve in Arterial Blood During Insulin Shock. O. Klein and H. Holzer.—p. 1081.
Effect of Insulin in Pulmonary Tuberculosis. L. Dünner and M. Dohrn.—p. 1082.
Clinical Course of Inoperable Renal Tumor. F. Fuchs and O. Panek.—p. 1083.
Roentgen-Ray Diagnosis of Calcification of Pleura. H. Lenthe.—p. 1084.
Diagnosis and Desensitization Treatment of Hay-Fever. L. von Bánszky.—p. 1086.
Cure of Exophthalmic Goiter by "Cold" Diathermy. H. Schwerdtner.—p. 1087.
Question of Influence of Hormones on Sex. F. Uhlmann.—p. 1088.
Giantism and Dwarfism. E. Czyhlarz.—p. 1090.

Duration of Pregnancy in Determination of Paternity.—Assembling from the literature more than 1,000 cases of infants weighing from 3,000 to 3,500 Gm. and measuring from 48 to 52 cm. in length at birth, Sellheim found that the shortest duration of pregnancy for a mature child was 213 days, while the longest was 334 days. On the basis of this material he drew up a curve of probability for various lengths of pregnancy. The majority of cases are grouped around the mean of 270 days. The curve falls away rather abruptly to the left and to the right, representing on the one hand shorter and on the other longer pregnancies. With this curve, the author points out, it will be possible for the medical expert, when questioned by the judge in a case of paternity, instead of answering merely with the customary "evidently impossible" or "possible" to define more closely the degree of probability.

Münchener medizinische Wochenschrift, Munich

75: 1151-1190 (July 6) 1928. Partial Index

*Multiple Skin Cancers in Mice from Tar Feeding. H. Fischer.—p. 1151.
Nontuberculous Arthritis Simulating Tuberculous Arthritis. H. Friedrich.—p. 1153.
Glycosuria Innocens. G. Paasch and H. Reinwein.—p. 1159.
Hypotonia of Eyeball in Coma. E. Wiechmann and F. Koch.—p. 1160.
Abdominal Symptoms in Diabetic Coma. E. Wiechmann.—p. 1160.
Reaction of Kadisch Test in Tropical Diseases. Heinemann.—p. 1161.
Summer Influenza. W. Glaser.—p. 1162.
*Stool Examinations in Filipinos. L. Lissner.—p. 1163.
*Postoperative Embolism. O. Loewe.—p. 1163.
*Result of Trendelenburg Operation in Embolism of Pulmonary Artery. H. Stegemann.—p. 1165.
Treatment of Chorea Minor. K. Ochsenius.—p. 1169.
New Hot Water Bottle for Treatment of Gynecologic Diseases. F. Westphalen.—p. 1169.
Alpine Sanatoriums for Lupus. Axmann.—p. 1170.
Artificial Abortion with Perforation of Uterus. K. Bollag.—p. 1170.

Production of Multiple Skin Cancers in Mice by Tar Feeding or Tar Clysters.—Fischer observed that when tarred oats are fed to mice the fur of the animal soon becomes greasy,

If the tar feeding is continued, the hair falls out. After about six months of feeding, benign papillomas appear—chiefly on the head and neck. Histologic examination shows that these are follicle epitheliomas resulting from a proliferation of the follicular epithelium. They enlarge and increase in number for a few months and then suddenly the surface becomes brownish and at the same time a wall-like edge develops around the periphery of the papilloma. Histologic examination of the changed lesion shows it to be a typical cancer of the skin. In animals which are given tar clysters, the same phenomena are observed. The author believes that the cancers which develop in mice following the feeding of tar by mouth represent a tissue reaction which is due to the excretion of the tar by the skin glands. This explains its origin in the epithelium of the follicle. In man the same mechanism of absorption of substances from the gastro-intestinal tract with insufficient detoxication and with elimination at definite points may explain changes of an inflammatory nature which, when long continued, may produce malignant neoplasms at the point of elimination. These substances are possibly products of metabolism or of intestinal putrefaction.

Stool Examinations of Five Hundred Filipino School Children.—In a single examination of the stools of each of 500 Filipino school children, varying in age from 8 to 18 years, Lissner found eggs of intestinal worms in 92.4 per cent of the stools. The incidence of the different kinds of worms was as follows: *Ancylostoma duodenale* in 16.4 per cent; *Ascaris lumbricoides* in 73.0 per cent; *Trichocephalus dispar* in 32.3 per cent and *Oxyuris vermicularis* in 7.6 per cent. Of the 500 children, 28.8 per cent were infected with two different kinds of worms, most commonly with *Ascaris* and *Trichocephalus*. Four and six tenths per cent harbored three different kinds of worms simultaneously.

Postoperative Embolism.—Loewe cites statistics illustrative of the recent increase in the incidence of postoperative embolism in Germany and elsewhere. From 1910 to Oct. 1, 1926—exclusive of the years from 1915 to 1917—the mortality from postoperative embolism at the Bockenheimer Deaconesses' Home was 0.1 per cent. From Oct. 1, 1926, to April 1, 1928, it was 0.5 per cent (number of operations, 1,387). The author deems that this increase represents an epidemic of unknown etiology. He considers it an infectious but not contagious disease. As in infectious diseases, so in embolism, sporadic cases occur at all times until suddenly the cases appear in great numbers. Another analogy with infectious diseases is the fact that only predisposed persons are affected. There is unquestionably a definite type which is susceptible: tall, thin, long-necked, pale persons. The author formulates the following hypothesis: embolism is caused by infection of a predisposed individual with an unknown organism.

Late Results of Trendelenburg Operation for Pulmonary Embolism.—Stegemann reports a case of pulmonary embolism for which a Trendelenburg operation was performed four years ago. The patient was a woman, aged 38, on whom he had operated for an incarcerated femoral hernia. Three days after the operation the clinical signs of a massive pulmonary embolism appeared. Fifteen minutes after the appearance of the signs of embolism, the Trendelenburg operation was performed by Kirschner. The patient was so nearly dead that the operation was performed without an anesthesia. When the great vessels were compressed so as to facilitate the removal of the embolic mass, the heart stopped beating. A 16 cm. long embolus was removed from the pulmonary artery. When the pressure in the great vessels was released, the heart started to beat again. The patient left the hospital five weeks later. During the past four years she has been completely free from symptoms. An electrocardiogram made recently shows perfectly normal jugular and carotid curves.

Wiener klinische Wochenschrift, Vienna

41: 941-976 (July 5) 1928. Partial Index

*Immunization of Mice Against Tumors. E. Urbach and H. Schnitzler. —p. 941.
*Serum Therapy of Typhoid. K. Reinthaler.—p. 947.
Swelling of Erythrocytes in Sodium Chloride-Dextrose Solution. F. Högler, A. Thomann and K. Überrack.—p. 949.
Cardiac Neurosis. W. Scholz.—p. 931.
*Rhinopathia Vasomotoria and Digestive Disturbances. D. Adlersberg and L. Forschner.—p. 955.
Accidents in Cyanide Disinfection. M. Kaiser.—p. 958.

Intracutaneous Immunization of Mice Against Cancer and Sarcoma; Rôle of Reticulo-Endothelial System in Tumor Defense.—Urbach and Schnitzler's attempts to excite the production of antibodies in mice by the intracutaneous injection of small quantities of fully virulent tumor tissue gave negative results. According to these experiments a specific, active immunization against transplantable tumors in mice is impossible. Experiments dealing with the reticulo-endothelial system, on the contrary, show that the animal organism possesses natural reactions of defense, even if they are usually insufficient. Whereas intracutaneous injections of suspensions of cancer or sarcoma cells almost without exception caused no reaction, 100 per cent of the inoculations were successful in animals in which a single intravenous injection of India ink had been made before the inoculation. The authors believe that this is to be explained by the functional paralysis of the reticulo-endothelial cells of the body caused by the storage of the ink in them.

Serum Therapy of Typhoid.—In a recent epidemic of typhoid in which he used antityphoid serum, Reinthaler noted that the duration of the fever in the great majority of the patients not treated with serum was longer than in the patients to whom serum was given; in the latter it was only from seven to sixteen days. No anaphylactic phenomena whatsoever were observed.

Rôle of Digestive Disturbances in Etiology of Rhinopathia Vasomotoria (Rhinitis Vasomotoria).—In careful examinations of the gastro-intestinal tract of all their patients suffering from rhinopathia vasomotoria and of the nose of all their patients suffering from chronic intestinal disturbances, Adlersberg and Forschner found: 1. Of seventeen patients with rhinopathia vasomotoria (purely anaphylactic-allergic cases being intentionally omitted) a pathologic condition in the intestine was found in fourteen. In most of the cases this consisted of persistent obstipation with secondary irritability of the colon. In some, however, marked proctosigmoiditis, typhlocolitis, and enterocolitis were present. In the three patients in whom no pathologic condition in the intestine could be demonstrated, the rhinopathia vasomotoria was of a purely allergic or climacteric nature. 2. Treatment of the intestinal condition in the fourteen cases with intestinal disease resulted in marked improvement of the nasal trouble in eight; no improvement was noted in the other six. 3. Of nine cases of chronic catarrh of the intestine two presented certain and three probable signs of rhinopathia vasomotoria.

Archiv für Psychiatrie und Nervenkrankheiten, Berlin

41: 977-1032 (July 12) 1928. Partial Index

Malaria Treatment of Syphilis. F. Bering.—p. 977.
Postencephalitic Sleep Symptoms. K. Bonhoeffer.—p. 979.
Present Tendencies in Psychology. O. Bumke.—p. 981.
Operative Procedure in Tumors of Region of Corpora Quadrigemina. O. Foerster.—p. 986.
Possibility of Transmission of Syphilis by Paralytics and Tabetics. F. Jahnel.—p. 990.
Malaria Treatment of Paralysis. A. Jakob.—p. 994.
Compulsive Weeping and Laughing. G. Mingazzini.—p. 998.
*Degenerative Myelitis Following Spinal Anesthesia. M. Nonne and H. Demme.—p. 1002.
Nervous System as Place of Antibody Formation in Relapsing Fever. F. Plaut.—p. 1005.
Cerebral Projection of Horizontal Meridian of Field of Vision. O. Pötzl. —p. 1009.
Study of Circulatory Disturbances in Brain in Relation to Pathologic Anatomy of Paralysis. W. Spielmeyer.—p. 1011.
Fitness of Paralytics for Carrying on Professional Work After Treatment. W. Weygandt.—p. 1013.

Degenerative Myelitis Following Spinal Anesthesia.—Nonne and Demme report the case of a man, aged 51, who was operated on under spinal anesthesia (tutocain) for bilateral inguinal hernia. The paralysis induced by the anesthetic did not disappear entirely. There remained a motor and sensory paralysis extending from the point of injection downward, with severe bladder and rectal disturbances. Cystopyelitis and intestinal tuberculosis developed, and sixteen months after the operation the patient died. Necropsy showed marked degeneration in the posterior portion of the conus and in the cauda equina with corresponding degeneration in the posterior columns. Noteworthy was the fact that aside from some tenderness between the cerebral meninges and a certain thickening of the dura in the lumbar and sacral portions of the spinal cord, there was no sign of inflammation. The question as to why such severe disturbances should follow spinal anes-

thesia in this case cannot be answered with certainty. It is possible that there was a predisposition in the central nervous system. Tuberculosis and syphilis were both present, though the former was believed to have developed during the patient's long confinement and the latter was first diagnosed at necropsy on the basis of a rather uncertain finding in the aorta. The fact that another patient anesthetized with the same preparation, from the same shipment, showed the same symptoms of paralysis would indicate that the cause of the injury was to be sought in the preparation itself.

Zeitschrift für Tuberkulose, Leipzig

51: 1-96 (May) 1928

Search for Early Infiltrate. H. Braeuning.—p. 1.
*Value of Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. G. Baer.—p. 12.
Ranke's Theory of Stages. K. Lydtin.—p. 23.
Pathogenesis of Early Infiltration and Origin of Chronic Pulmonary Tuberculosis. E. Fraenkel.—p. 34.
*Cicatricial Contraction of Lungs. F. Krampf.—p. 35.

Value of Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis.—Baer cites a number of cases in which excellent results were obtained by artificial pneumothorax. He estimates that permanent results are obtained in about one third of all cases treated. The treatment is more certain to be successful when no adhesions are present. It is indicated particularly in cases of early caverns that do not yield to conservative treatment. Another method can scarcely be found which in so short a time can convert an open case of pulmonary tuberculosis into a closed one. From the economic standpoint, it has the advantage of restoring the patient's ability to work within a relatively short time.

Clinical and Experimental Study of Cicatricial Contraction of the Lungs.—Contraction of the lungs is due almost entirely to inflammatory processes. These include pneumonia of various types, as croupous pneumonia, inflammation of the lungs in measles and influenza, and inhalation of phosgene and other gases; pneumonoconiosis; tuberculosis and syphilis; pulmonary abscess, and pathologic changes in the air passages as in so-called congenital bronchiectasis, bronchial stenosis, and bronchial occlusion. The pathologico-anatomic results of contraction in the lungs themselves were found to be local emphysema and secondary bronchiectasis. There was an expansion of the healthy parts of the lungs in the form of a compensatory vicarious emphysema. When pleural adhesions were also present, there was distortion of the mediastinum and its structures, upward displacement of the diaphragm, deformity of the thorax, and scoliosis of the spine. The circulation suffered according to the degree of the displacement. The right side of the heart was particularly affected, showing hypertrophy and dilatation. In experiments on dogs, contraction was produced (1) by ligation of branches of the pulmonary artery, (2) by simultaneous ligation of these branches and the veins leading to the heart, (3) usually but not always by ligation of the cardiac veins alone. The first promised results only in certain forms of bronchiectasis; the second is too dangerous; the third might be successful under certain conditions.

Zentralblatt für Gynäkologie, Leipzig

52: 1369-1432 (June 2) 1928

Diagnosis of Leukoplakia of Portio. H. Hinselmann.—p. 1373.
Indications for Hospital Delivery. M. Hirsch.—p. 1377.
Anemia of Pregnancy Resembling Pernicious Anemia. A. Pohl.—p. 1384.
Failures in Tubal Sterilization. M. Köhler.—p. 1397.
Tubo-Abdominal Pregnancy. Geisselhöder.—p. 1401.
Insulin Therapy of Toxicoses of Pregnancy. A. Loeser.—p. 1404.
*Toxicoses of Pregnancy Treated with Insulin. A. Loeser.—p. 1405.
"Severe Colpitis from Coitus with Condom." A. Littauer.—p. 1415.
*New Method for Care of Umbilical Cord. S. von Thurn-Rumbach.—p. 1416.

Forty-Five Cases of Pregnancy Toxicosis (Acidosis) Treated with Insulin.—Loeser's cases include thirty-six cases of hyperemesis, two of eclampsism, three of eclampsia, and four of dermatosis. Eighteen cases of moderate hyperemesis and ten cases of more severe hyperemesis were cured. Of eight patients with still more severe, uncontrollable vomiting, which appeared hopeless, all but two were successfully treated with insulin. Prompt and favorable results were obtained in the cases of eclampsism and eclampsia. In two of the latter, insulin was given without sugar. This could be done with safety, since in eclampsia the blood sugar value is normal or above normal. The results were equally successful in the dermatoses, two of which were herpes gestationis and the other two eruptions of uncertain character with severe itching.

New Method for Care of Umbilical Cord.—Thurn-Rumbach describes an instrument, the so-called "umbilical plug," which consists of a V-shaped aluminum plate having its edges turned up to avoid injury to the amniotic covering. On the inner surface are several teeth the size of a pin-head to keep the plug in place. For greater security there is a hook at one end. A specially designed forceps is used to apply the instrument. The cord is then cut from 1 to 2 mm. from the plug. The stump of the cord is left undisturbed under a light gauze bandage, which is changed only in case it becomes wet. The plug and the stump together fall off on the fourth to the ninth day. The author reports that the device has been successfully used in 200 cases.

52: 1625-1688 (June 30) 1928

Lactic Acid in Uterine and Embryonic Circulations. K. von Oettinger.—p. 1626.
*Primary Tumor of Appendix with Metastases in Genital Organs. R. Hornung.—p. 1630.
Conservative Tubal Operation and Temporary Sterilization. J. Koerner.—p. 1635.
Case of Ovarian Pregnancy. F. Bass.—p. 1640.
*Investigations of Gallbladder Function in Pregnancy and Puerperium. R. Benda.—p. 1644.
*Unusual Form of Pregnancy Toxicosis: Tetany Without Spasms. H. H. Schmid.—p. 1647.
Facial and Frontal Presentations. F. Demuth.—p. 1653.
*Menstruation During Lactation. O. Vértes.—p. 1666.

Primary Tumor of Appendix with Metastases in Genital Organs.—In the first of the two cases reported by Hornung, that of a woman, aged 41, a large carcinoma in the left and a smaller one in the right ovary were found to be metastases of a primary carcinoma of the appendix. The patient made an uneventful recovery following the operation, but died five months later, having refused to submit to further examination. The second case, one of pseudomyxoma of the peritoneum, the appendix and the ovaries in a woman, aged 59, is not so clear. In spite of careful microscopic examination, the primary seat of the disease could not be ascertained, but the author is inclined to the belief that it was the appendix. After the removal of the adnexa and the appendix, the patient recovered, and a year after the operation there had been no recurrence.

Gallbladder Function in Pregnancy and Puerperium.—Benda gives a preliminary report of cholecystographic studies of forty-six pregnant women, nine in the first half, thirty-seven in the second half of pregnancy. All were free from symptoms of gallbladder disease. Visualization was obtained in all the women in the first half of pregnancy. Of the thirty-seven in the second half of pregnancy, twenty-two were primigravidae, fifteen plurigravidae. In the former, there was good filling of the gallbladder in nine cases, partial filling in three, and nonfilling in ten. In the latter, there was good filling in three cases, partial filling in two, nonfilling in ten. The greater frequency of cases with nonfilling among the plurigravidae is noteworthy. Eighteen of the women examined in the second half of pregnancy were also examined in the puerperium. In three cases the gallbladder was unfilled, as before delivery. In all the others it filled well, even in those in whom this had not been the case before delivery.

Unusual Form of Pregnancy Toxicosis: Tetany Without Spasms.—In the case reported by Schmid, that of a primipara, aged 21, attacks of fainting began suddenly in the fifth month of pregnancy. Loss of consciousness lasted for from five to seven minutes. Except for heightened reflexes, no nervous symptoms were evident. Since eclampsia, epilepsy, and hysteria were excluded, a probable diagnosis of tetany was made, in spite of the absence of the typical spasms. This diagnosis was confirmed by the prompt and lasting effect of calcium treatment. The attacks ceased. Delivery was spontaneous; the child was healthy and lactation was undisturbed.

Menstruation During Lactation.—Although statistics are about the same for amenorrhea and menstruation during lactation, Vértes is convinced that absence of menstruation is the

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normal condition and that menstruation during this period occurs only when some inflammatory condition is present in the pelvis. In illustration he cites a case in which profuse bleeding alternated with a continued slight discharge of blood for seven months after delivery. After this time regular menstruation returned. The woman suckled her child for fifteen months. There was found to be an inflammatory process in the Douglas pouch with probable cystic degeneration of the ovaries. Such inflammation hinders the development of the corpus luteum which normally has an inhibiting effect on menstruation during lactation. To offset the unfavorable effect of menstruation especially metrorrhagia, on milk secretion, the author gives corpus luteum preparations, with good results.

Bolesni Organov Pishtevarenia, etc., Leningrad

4: 1-128, 1928

Contribution of Endocrinology to Medicine. M. J. Breitman.—p. 1.
Ulcers of the Stomach and Duodenum. A. E. Lampé.—p. 17.
*Pernicious Anemia. Naegeli.—p. 40.
Liver Diet. F. M. Ganskow.—p. 52.

Pernicious Anemia: Diagnosis.—Naegeli lays stress on the importance of differentiating between true pernicious anemia (Biermer's) and other anemias of pernicious type. Pernicious anemia has a definite etiology. Neither syphilis nor antisyphilitic treatment can be the sole cause. It may remain dormant for years, waiting for the occurrence of a final factor necessary for its development. From certain cases in the literature, it would appear that this final factor may sometimes be pregnancy. In sprue he has never found megalocytosis, but always a marked microcytosis. Large young cells (macrocytes) are frequently mistaken for megalocytes. Typical megalocytes are seen only in true pernicious anemia. Megaloblasts with finely reticular young nuclei and old megaloblasts with small nuclei or a few nuclear fragments are never found in any other type of anemia.

Klinicheskaya Meditsina, Moscow

6: 617-672 (June) 1928

Mechanism and Nature of Mud Balneotherapy. V. A. Alexandrov.—p. 617.
Origin and Nature of Progressive Paralysis. N. I. Skliar.—p. 623.
Treatment of Chronic Enterocolitis with Transduodenal Irrigation. O. K. Weber.—p. 630.
*Transduodenal Expulsion of Tapeworm. M. M. Schafir.—p. 634.
Influence of Semigor Mineral Water on Stomach Secretion. N. S. Smirnov and N. S. Manvelov.—p. 636.
*Biologic Connection of Round Gastric Ulcer with Vegetative Organs, Constitution and Vegetative Status. I. S. Rodov.—p. 643.
Liver Diet in Pernicious and Secondary Anemias. M. and L. Pevsner.—p. 648.
Hernia Lineae Albae. G. B. Teplizkiy.—p. 651.
Case of Sprue in the Caucasus. K. A. Egorov.—p. 656.
Examination of Secretory Function of Stomach. N. I. Leporskiy.—p. 660.

Transduodenal Expulsion of Tapeworm.—Schafir introduces the duodenal tube without preliminary dietetic preparation, but before any food is taken. The appearance of bile indicates that the tube is in the duodenum; then the anthelmintic is introduced. In some of the author's cases the discharge of bile began in twenty minutes, but on the average it did not appear until from one to one and one-half hours. An hour and a half after the introduction of the anthelmintic, irrigation is performed with physiologic solution of sodium chloride, unless the worm is expelled first. In that event, irrigation is performed directly after its expulsion. A hot water bottle is applied to the abdomen during the above treatment in order to prevent chill. The worm was usually expelled in from two to two and one-half hours.

Biologic Connection of Round Gastric Ulcer with Vegetative Organs, Constitution and Vegetative Status.—Gastric ulcer, Rodov holds, is a disease of the vegetative nervous system and vegetative organs. The irritation of the vegetative nervous system evokes motor and secretory disturbances: spasm, anemia, necrosis and ulcer, particularly of the stomach. Successful treatment of the ulcer consists in general care of the patient. Resection of an ulcer only prepares better conditions for therapy aimed at changing the tonus of the vegetative nervous system. Rodov advises protein therapy and alkali treatment. During twelve years' observation it was noticed that a very small per cent of cases presented the picture of local disease (superficial ulcer). In most of the patients disturbance of functions of other organs, such as the lungs, liver, pancreas, kidneys or vegetative nervous system, was ascertained.

6: 673-727 (June) 1928

Debatable Problems in Heredity. N. M. Koulagin.—p. 673.
*Foreign Body in Respiratory Tract. A. I. Feldman.—p. 683.
Spirometry as Clinical Method of Examination. A. Antoni.—p. 690.
Diagnosis and Course of Acute and Chronic Abscesses and Gangrene of Lungs. M. M. Alperin.—p. 694.
*"Strumming Sound" in Artificial Pneumothorax. V. V. Nisjaev.—p. 706.
*Pathogenesis and Therapy of Hemorrhage in Pulmonary Tuberculosis. I. S. Rodov.—p. 708.
Primary Chronic Polyarthritis. A. N. Dobrotin.—p. 713.
Therapy of Hyperhydrosis Localis Faciei. F. D. Stoyanov and E. O. Fukelman.—p. 718.
Gymnastics in Pulmonary Tuberculosis. D. H. Mojaiev.—p. 721.

Foreign Body in Respiratory Tract.—In a case reported by Feldman a bone was swallowed and remained three years and four months in the trachea. At first the bone stopped in the larynx and caused loss of voice and difficulty in breathing. A blow on the back, or the inspired air forced the bone into the trachea. The slight cough in the latent period and the increase of attacks of coughing after a few days resulted in the diagnosis of whooping cough. The irritation of the sharp-edged bone caused a proliferative process, which explains the discharge of blood, the sputum colored with blood and the difficulty in breathing. The inflammatory process progressed and the temperature rose. In spite of complaints by the patient of localized chest pain suggesting the presence of the bone, the diagnosis of tuberculosis was made, and the patient was treated accordingly. Six months after the bone was swallowed, a roentgenogram showed a star-shaped shadow at the site of the pain. Bronchoscopy was not performed at this time on account of the severity of the cough. Three years later, when the condition grew worse, bronchoscopy was performed and the bone was removed. All symptoms disappeared. The bone was situated so that air and mucus could pass on both sides. This position caused diffusion of clinical symptoms and confused the diagnosis of foreign body. The fact that the bone had been cooked made it less dangerous than it would otherwise have been.

"Strumming Sound" in Artificial Pneumothorax.—In performing artificial pneumothorax, Nisjaev observed in rare instances a peculiar "strumming sound" on auscultation, like that produced by plucking a string. This phenomenon is due, in his opinion, to an isolated, single band of pleural adhesions, distended by the collapsed lung and resounding in the pneumothorax cavity. In two cases the sound disappeared after the introduction of more gas into the pleural cavity, owing supposedly to overdistension of the adhesion in one case and to the rupture of the adhesion after a hot Russian bath in another case. This was confirmed by repeated roentgenograms. Only a single cordlike adhesion produces this "strumming sound." If present, it warns the operator of the possibility of rupture of the adhesion with undesirable complications.

Pathogenesis and Therapy of Hemorrhage in Pulmonary Tuberculosis.—The organic theory of hemorrhage in tuberculosis is not sufficient. The cause lies in functional variations of the vascular apparatus. Tuberculin in tuberculous patients does not cause organic variations in walls of blood vessels or their rupture. Tuberculin is a poison which irritates the vegetative nervous system that innervates the vascular system and regulates its tonus. Tuberculin, nerve stimulation and lipoido-cholesterol (its decrease or absence) cause functional disturbance of arterioles, veins and capillaries. This is expressed in a hypotonic symptom complex, endothelial complex, increase of permeability and disturbance of osmotic exchange. Tuberculin irritation causes disturbance of endocrine function, also of the function of the vegetative nervous system in the direction of hyperorthocytosis. Chemico-colloidal changes take place in the blood with disappearance of lipoido-cholesterol, which increases the permeability of the arterioles and capillaries. Pathologic contraction, expansion and permeability of vessels cause conditions which lead to hemorrhage, though the macroscopic integrity of the vessels is preserved. The intravenous use of epinephrine with simultaneous feeding of substances containing lipoido-cholesterol and combined hormone, the latter consisting of epinephrine and an insulin-like antagonist, not only

increases blood pressure and accelerates the pulse, but displaces the hypotonic symptom complex toward normal tone, and hemoptysis ceases.

Profilakticheskaya Meditsina, Moscow

7: 1-200 (June-July) 1928. Partial Index

Biologic Significance of Beverages Containing Caffeine. V. A. Ouglov. —p. 1.
*Oxyuris Vermicularis in Children: Therapy and Prophylaxis. K. I. Skriabin and R. E. S. Schulz.—p. 22.
Classification of Carriers of Infection. M. N. Soloviev.—p. 40.
Alcoholism Among Children and Young Persons. B. S. Sygal.—p. 46.

Oxyuris Vermicularis in Children.—Normal localizations of *Oxyuris vermicularis* are the distal portion of the small intestine, the cecum and appendix. Here the parasite attains its maturity and both male and female are found. In the distal part of the rectum the female only is found. It comes down to the anus to lay eggs. Enemas are useful in helping to eliminate the female from the rectum, although they cannot reach the normal localizations of the parasite.

Acta Chirurgica Scandinavica, Stockholm

63: 479-578 (July 25) 1928

*Formation and Disappearance of Amyloid in Man. H. Waldenström. —p. 479. In English.
*Inflammations and Hematomas of Abdominal Wall. M. Wehik.—p. 531.
Operative Treatment of Urethral Defects. E. Key.—p. 545.
*Chondromatosis of Knee Joint Capsule. T. Beckman and G. Ivarsson. —p. 551.
*Cholecystectomy Versus Cholecystostomy. S. Wideröe.—p. 570. In English.

Formation and Disappearance of Amyloid in Man.—Waldenström failed to find any special microbe in the excretions of patients with amyloidosis. Amyloid is a protein substance. Protein is absorbed in the intestine and transferred to the blood in the form of amino-acids. Under some circumstances the ferments that should convert the proteins for their absorption by the body cells may prove insufficient and an insoluble protein may arise instead (amyloid). In a patient with suppurations, Waldenström says, it might be conceived that the ferments—or cells forming them—through being injured by the toxemic state, become insufficient, just as in experimental amyloid, causing a deviation from the usual protein synthesis with formation of soluble proteins. This ferment might conceivably be formed by the white blood corpuscles. The profuse suppuration renders the formation of masses of such cells necessary. Finally the cell-forming organs become overstrained and they are no longer able to form cells required for the production of pus and the complete transformation of the albumin. Searching for confirmation of the hypothesis that the leukocytes are concerned in some way with the deposition of amyloid, Waldenström examined the blood of patients with amyloidosis. They were all found to have a slightly larger number of leukocytes than is normal, but not more than in cases of chronic sepsis without amyloid, neither does the microscopic picture indicate any derangement in the proportion between the different kinds of leukocytes.

Diseases of Anterior Abdominal Muscles.—Wehik reports on twenty cases of diseases of the anterior abdominal muscles, including three cases of traumatic origin; the remaining seventeen cases were of metastatic nature.

Chondromatosis of Knee Joint Capsule.—Beckman and Ivarsson describe a case of chondroma in the capsule of both knee joints in a woman, aged 50. Operation was performed on one side and consisted of resection of the suprapatellar bursa, in which most of the chondroma had developed. Full function was restored to the joint after the operation. A clinical and patho-anatomic study of the case showed that it accorded completely with the condition of "chondroma in joint capsules," first described by Reichel, but did not support the hypothesis of the chondroma being a true tumor. The authors are of the opinion that chondromatosis is to be differentiated from arthritis deformans, not morphologically, but by a characteristic well marked tendency of the synovial membrane in the former condition to form cartilage and bone as well as by the well defined clinical picture.

Cholecystectomy vs. Cholecystostomy.—Wideröe has treated 188 patients with disease of the bile ducts, 148 by operation. Seventy-six were operated on in the interval stage without a death, seventy-two during an attack, with fourteen deaths. The greatest number of interval operations were performed in the third decade, while the greatest number of operations during an attack were performed in the fifth decade. Of the interval operations, 92 per cent were cholecystectomies and 8 per cent cholecystostomies. Of the operations during an attack 55 per cent were cholecystectomies and 45 per cent cholecystostomies. In the first group stones were found in 90 per cent, in the second group in 65 per cent. The author does not regard the two methods of operation as competing methods in general. Each method has its special indications. There is an opportunity of choice in particular cases only, according to Wideröe's material in 45 per cent. In these latter cases the author prefers cholecystectomy.

Hospitalstidende, Copenhagen

71: 621-648 (June 14) 1928

*Experimental Alcohol Cancer in White Mice. C. Krebs.—p. 621.
*Spondylitis Due to Bacillus Abortus of Bang. J. P. Jensen.—p. 637.

Experimental Alcohol Cancer in White Mice.—In three out of twenty-five white mice exposed to the steady action of a 50 per cent solution of alcohol by injection into the rectum or administration by mouth, undoubted carcinomas appeared where the alcohol had been applied (two cases in the mouth, one in the rectum), as a direct consequence, Krebs believes, of the effect of the alcohol. In between 7,000 and 8,000 white mice examined during the last five years with special regard to tumor, spontaneous tumor was never found in the mouth or gastro-intestinal canal.

Spondylitis Due to Bacillus Abortus of Bang.—Jensen's patient had had a febrile disorder diagnosed as typhoid a year earlier; there had been possible exposure to infection with *Bacillus abortus*. He now had an abscess in the left groin and roentgen-ray examination disclosed new bone formation and bone destruction in the third and fourth lumbar vertebrae. The diagnosis was infectious spondylitis. Tuberculosis was excluded. While the roentgen-ray picture resembled that in spondylitis typhosa, typhoid bacilli were not found at the time of the febrile disease or on repeated tests since; a definite serologic reaction to *Bacillus abortus* of Bang was obtained after ten months of treatment. Comparison with Roger's five cases of spondylitis melitensis, together with the patient's history, the clinical course, peculiar roentgen-ray picture, and serologic results lead Jensen to regard this case as probably due to infection with Bang's bacillus.

Ugeskrift for Læger, Copenhagen

90: 597-622 (June 28) 1928

*Value of Determination of Blood Type in Settlement of Paternity Cases. O. Thomsen.—p. 597.
Metallic Salt Therapy and Prophylaxis. L. E. Walbum.—p. 608. C'td.

Value of Determination of Blood Type in Settlement of Paternity.—Thomsen gives a list of fifty cases in which typing of the blood has been made in Denmark in order to throw light on the question of parentage. He holds that typing of the blood may be of positive value, especially in cases of births outside of wedlock.

90: 623-650 (July 5) 1928

*Treatment of Exophthalmic Goiter. M. Fenger.—p. 623.
Treatment of Placenta Praevia. K. Bierring.—p. 630.
Metallic Salt Therapy and Prophylaxis. L. E. Walbum.—p. 638. C'tn.

Treatment of Exophthalmic Goiter.—Fenger and his associates studied 543 cases of exophthalmic goiter, 362 treated medically and observed from three to fourteen years, and 181 treated surgically and observed from two to fourteen years. Their main conclusion is expressed thus: If of 200 cases of pronounced typical exophthalmic goiter 100 are treated surgically and 100 given medical treatment, the surgeon will cure about twice as many of his 100 cases as the internist of his 100; roentgen-ray treatment does not materially affect this result.

Correction.—In THE JOURNAL, August 18, p. 527, in the list of articles in the *Deutsche medizinische Wochenschrift*, June 8, p. 953, the title should read "Aschner's Eyeball Pressure Phenomenon."